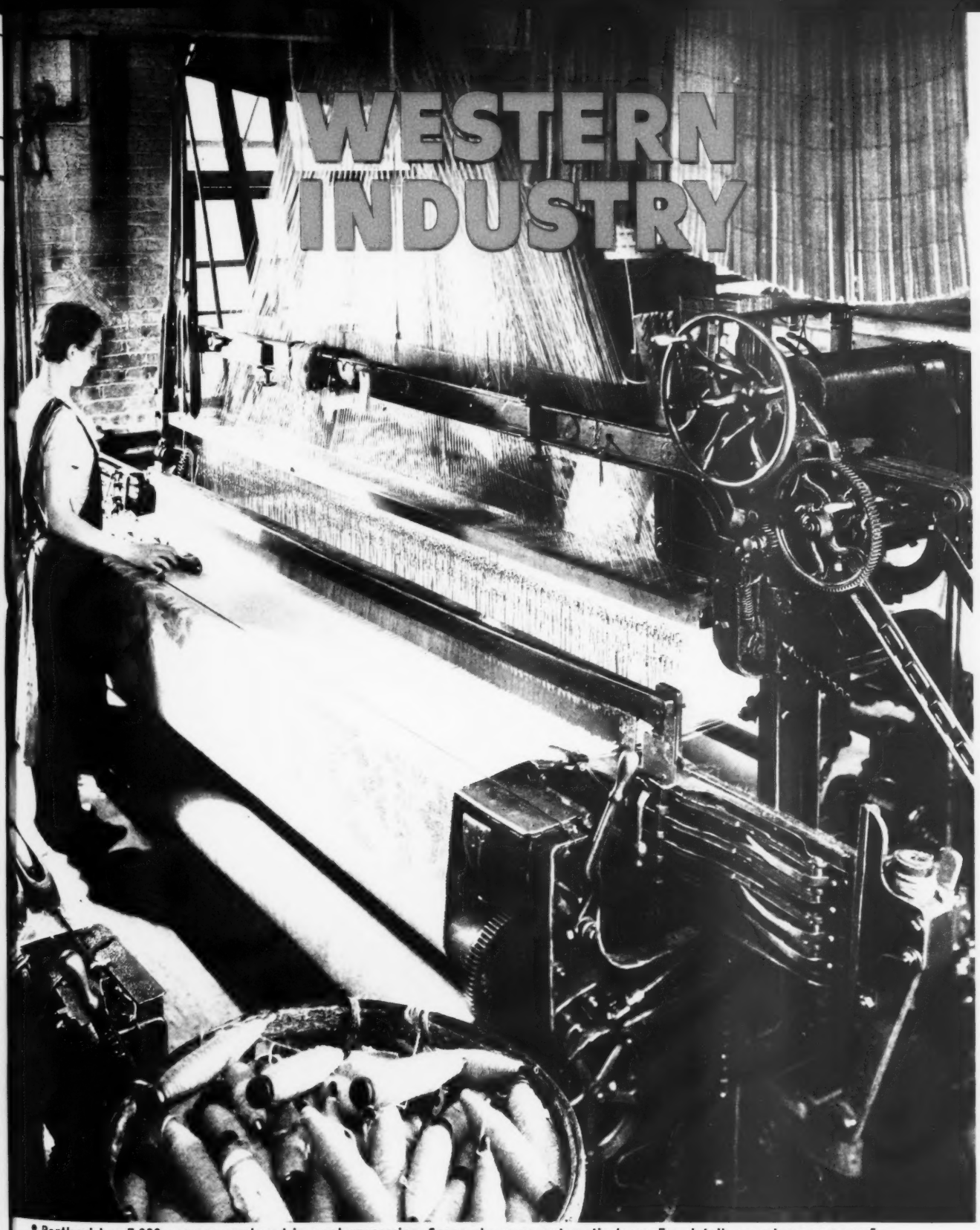
WESTERN INDUSTRY



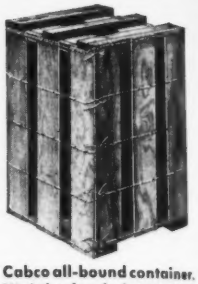
• Portland has 7,000 persons employed in wool processing. Scene shows an automatic loom. For details see story on page 5.

***IN THIS ISSUE:** How to Work the Incentive in an Incentive Plan that Works; When Research Comes in the Door, Recession Jumps Out the Window; Your Added Market on the Pacific Coast between Now and 1960; Shipping Problems Shrink with Standardized Crates; Chemical Show Offers Solution to Liquidate Practical Problems; Nathan Report Discredited; New Regulations on Overtime*

Thirty-Five Cents VOLUME XIV NUMBER 10 **October, 1949**

SAVES WEIGHT! ...SAVES TIME!

Nailed crate formerly used. Weight loaded 175 lbs. Packing time, 4 minutes.



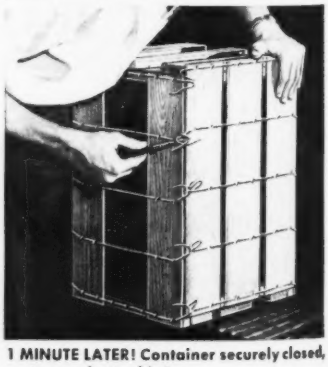
Cabco all-bound container. Weight loaded 150 lbs. Packing time, 1 minute.

CABCO ALL-BOUND CONTAINERS SAVE 25 POUNDS, CUT PACKING TIME 75% ON ELECTRIC MOTOR SHIPMENTS

A 25-pound reduction of actual tare weight! And a 75% saving on packing time! That's how Cabco all-bound wooden containers are helping General Electric Company save on shipments of 3-hp electric motors from its San Jose, Calif. plant. Cabco all-bounds cut packing time from 4 minutes to 1 minute per motor. Shipping weight is reduced 13% over nailed crates formerly used. And Cabco all-bounds (received flat, ready to use) also simplify and speed container handling within the plant on the loading dock and at the destination.

START! 3 hp G. E. motor rolls along assembly line to packing point.

30 SECONDS LATER! Paper cover on, top in place, Cabco all-bound wraps around motor.



1 MINUTE LATER! Container securely closed, motor ready to ship!

IN MANY INDUSTRIES...

...from the equipment manufacturer to the fruit and produce grower, shippers are benefiting from the multiple advantages of Cabco all-bounds. These modern, engineered containers give excellent product protection, often weigh less, require little storage space, are easy to handle, and fold together in seconds without hammer or nails. Cabco all-bounds are made by the West's oldest, foremost manufacturer of wooden containers.

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Piping men everywhere know the advantages to be gained by standardizing on Crane. It's the **One Source of Supply** complete enough to simplify every piping procedure. **One Responsibility** for all materials helps to assure better installations, avoids needless delays. And for the **High Quality** in every item that makes for dependable and durable piping systems, there's no better source to turn to than Crane.

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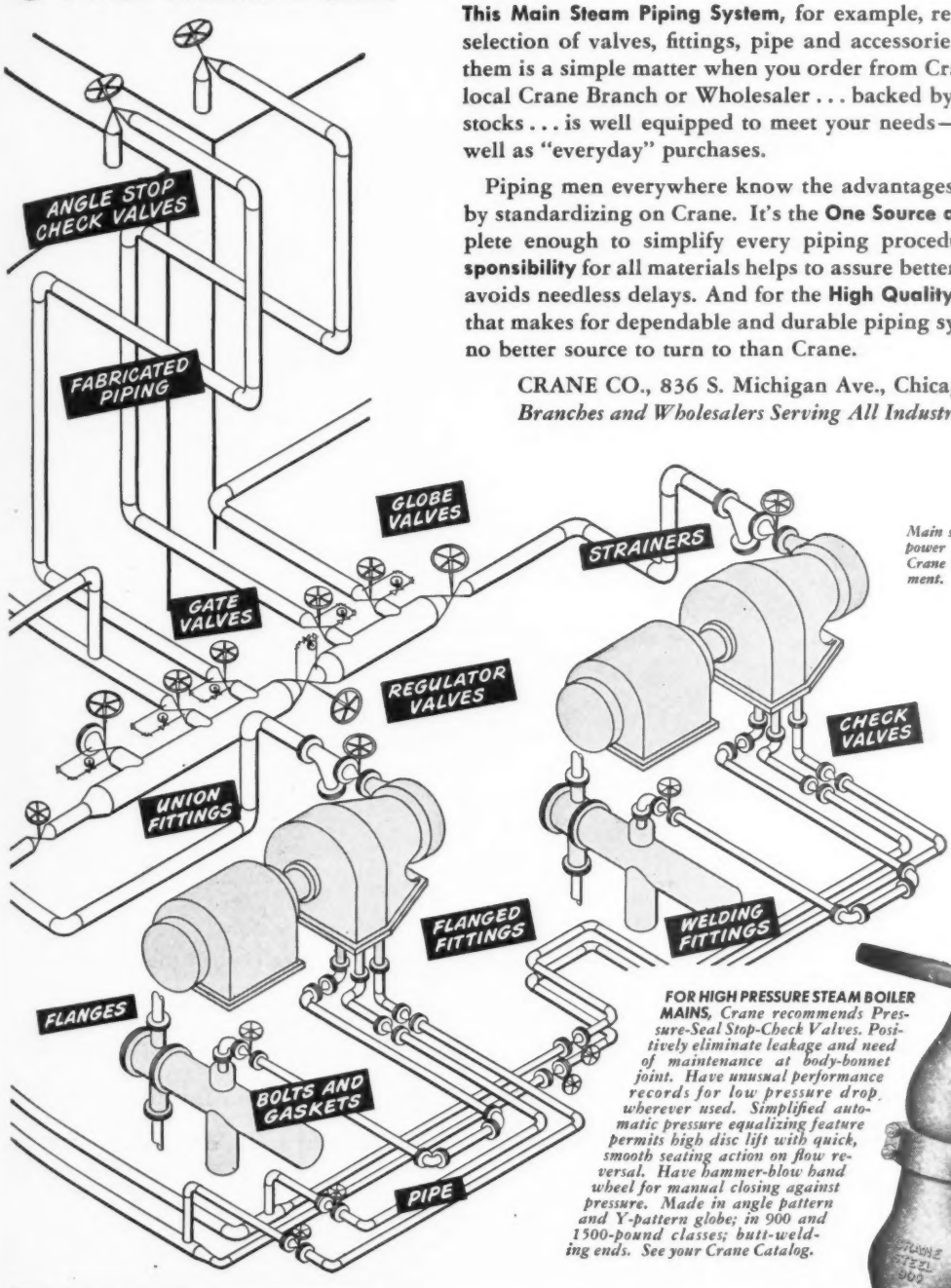
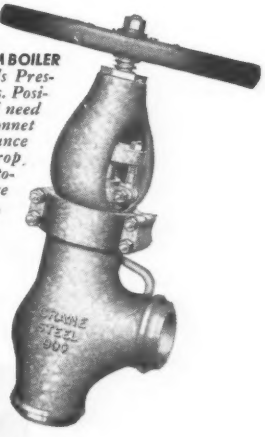
Branches and Wholesalers Serving All Industrial Areas



Main steam lines in a large power plant; one order to Crane gets all piping equipment.



FOR HIGH PRESSURE STEAM BOILER MAINS, *Crane recommends Pressure-Seal Stop-Check Valves. Positively eliminate leakage and need of maintenance at body-bonnet joint. Have unusual performance records for low pressure drop wherever used. Simplified automatic pressure equalizing feature permits high disc lift with quick, smooth seating action on flow reversal. Have hammer-blow hand wheel for manual closing against pressure. Made in angle pattern and Y-pattern globe; in 900 and 1500-pound classes; butt-welding ends. See your Crane Catalog.*

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PIPE • PLUMBING
AND HEATING

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This Month in

WESTERN INDUSTRY

VOLUME XIV OCTOBER, 1949 NO. 10

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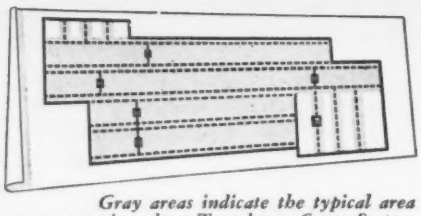
Front Cover

Oregon may be aptly said to be a well-knit woolen area, for practically the entire clip from this state and Washington, plus thousands of pounds from Idaho and Western Montana, feeds through Portland, which got an early start in processing. Scene shows automatic blanket loom at Portland Woolen Mills.

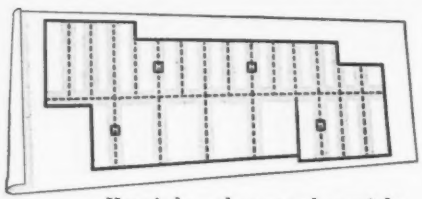
Interlocking Trambeam Cranes may be used independently or simultaneously. Powered with patented Vari-Pressure Drive units.

How TRAMBEAM CRANES

Can Cover Every Square Foot of Working Area



Gray areas indicate the typical area coverage given by a Trambeam Crane System



Here is how the same plant might be served by an extensive system of monorails

Where "area coverage" is necessary or desirable, Whiting Trambeam Cranes will supply materials-handling service at lower cost than monorails, which can give only "line coverage."

Whiting's augmented production facilities, plus over 60 years experience in designing and building materials-handling equipment, assure the ability to have an efficient system in operation in your plant on short notice. We are quoting amazingly quick deliveries on most types of Trambeam equipment.

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OVERHEAD MATERIALS-HANDLING SYSTEMS

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3. Power transmission products backed by a 51-year record of specialization in precision engineering and mechanical craftsmanship.

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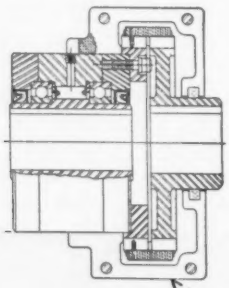
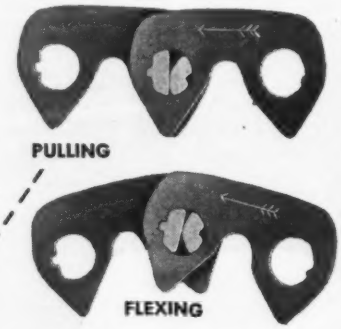
And you get the *extra margin of profit* that results from buying all your power transmission equipment from a single source—the leader in power transmission, Morse Chain Company and Morse Chain Distributors.

Keep your catalog file up-to-date! Send coupon for latest data and specifications on Morse Roller and Silent Chain Drives, Clutches, Couplings and Driveshafts.

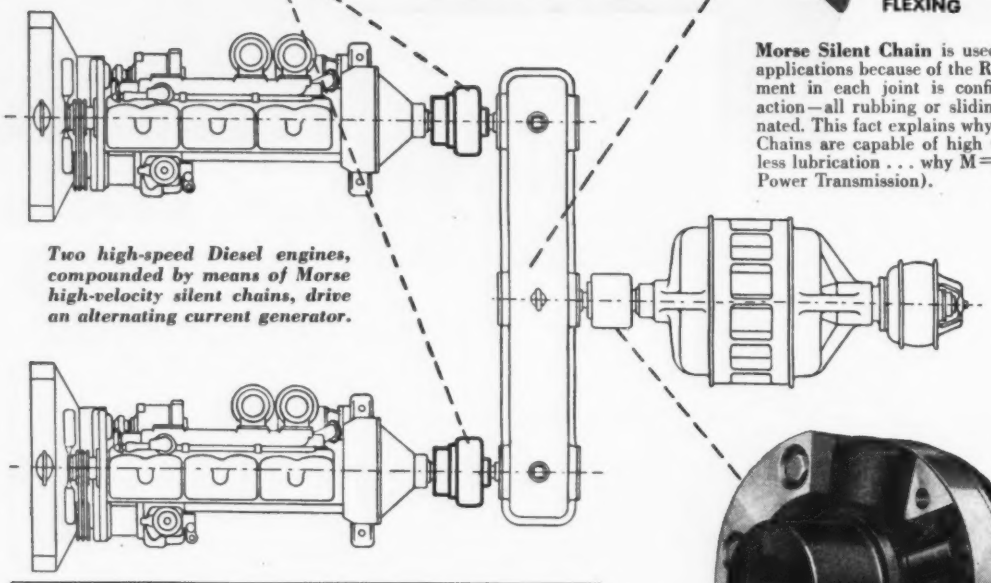
Typical Application of Morse Power Transmission Products



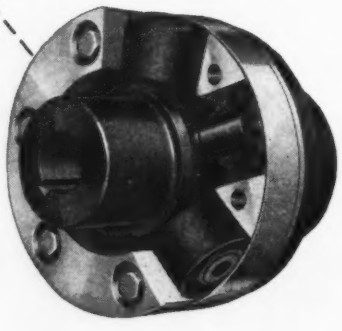
Morse-Formsprag Clutch Couplings combine full complement Morse-Formsprag over-running clutches and Morse flexible couplings. The over-running clutch automatically engages when torque is applied—disengages when torque ceases. The automatic action is instantaneous to protect equipment in the event of failure of either engine. Morse flexible couplings compensate for misalignment.



Morse Silent Chain is used on high velocity applications because of the Rocker Joint. Movement in each joint is confined to a rocking action—all rubbing or sliding motion is eliminated. This fact explains why only Morse Silent Chains are capable of high velocities—require less lubrication . . . why M=PT (Morse means Power Transmission).

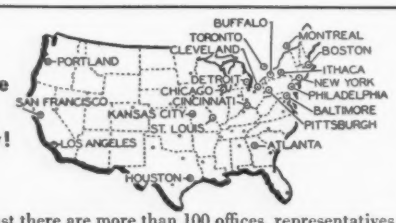


Two high-speed Diesel engines, compounded by means of Morse high-velocity silent chains, drive an alternating current generator.



Morse Morflex Radial Couplings with resilient, preloaded rubber "biscuits" are ruggedly constructed, and torsionally flexible. Morflex Radial Couplings compensate for misalignment, absorb shock and dampen vibration. These qualities result in smooth, vibration-free power transmission. M = PT (Morse means Power Transmission).

ASK the Morse Man nearest you . . . today!



From coast to coast there are more than 100 offices, representatives and distributors of Morse Power Transmission products to give you quick information and service when you want it—where you want it. *Ask the Morse Man first in any case!* **Check your classified telephone directory under "Power Transmission" or "Chains."**

Morse means Power Transmission

Morse Roller Chain Drives

Morse Silent Chain Drives

Morse Roller Chain Couplings

Morse Silent Chain Couplings

Morse Morflex Couplings

Morse Morflex Radial Couplings

Morse Morflex Drive Shafts

Morse-Formsprag Clutches

Morse-Rockford Clutches

Morse-Rockford Pullmore Clutches

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- ☐ Morse-Formsprag Clutches
- ☐ Silent Chains and Sprockets
- ☐ Morflex Couplings
- ☐ Morse-Rockford Clutches
- ☐ Pullmore Clutches
- ☐ Have representative call

Name_____

Title_____

Company_____

Address_____

City_____ Zone____ State_____

So millions of horsepower can go to town

Because electric power is often generated in remote undeveloped areas, much of it must be transmitted hundreds of miles to light the boulevards and turn the lathes of the West. Vast interconnected networks of power lines with steel transmission towers carry the current across mountains and deserts alike to make it available at the flip of a switch.

The manufacture of these towers is an industry in itself. For instance, Bethlehem Pacific operates a large structural steel fabricating shop at South San Francisco that is at present devoted exclusively to the design and production of steel parts for transmission towers. Large and complete, this shop can turn out fabricated steel on any scale required by western utilities.

In addition, Bethlehem Pacific operates structural steel fabricating works at Alameda and Los Angeles. Steel for transmission towers and other kinds of fabricated steel construction is produced in Bethlehem Pacific's self-contained plants at Seattle, South San Francisco and Los Angeles.

Above—Shipping yard for tower parts, South San Francisco plant.

BETHLEHEM PACIFIC COAST STEEL CORPORATION

Sales Offices: San Francisco, Los Angeles, Portland, Seattle, Honolulu

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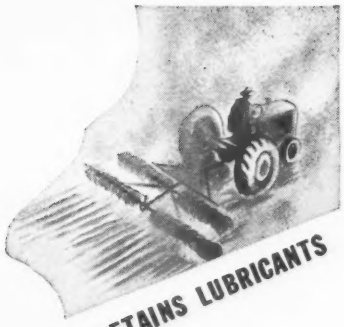
BETHLEHEM STEEL



FELT KEEPS OUT DESTRUCTIVE DUST, RETAINS LUBRICANTS

Today, thanks to felt, farm tractors can plow and harrow in thick clouds of dust without damage. It was not always so; some of the early farm tractors were failures because their working parts were not adequately protected, and dust chewed up the engine, the bearings, the brakes.

Tractor manufacturers now have dust well under control, and American Felt Company is proud to help them, supplying felt for shields and seals that not only keep dust out of working parts, but also retain lubricants. Thus felt serves both industry and agriculture in several important ways. If your product requires protection against dust, dirt, water, or other substances, and must be reliably lubricated, write American Felt Company. Ask for Data Sheet No. 11, "Felt Seals, Their Design and Application", which gives authoritative technical information and includes illustrative samples.

● Bendix Mechanically-operated Farm Tractor Brake is an excellent example of the use of a felt seal to exclude dust. Top, dust shield showing felt seal in place. Bottom, inside view showing the new Centermount construction which eliminates the conventional backing plate.

American Felt Company

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ENGINEERING AND RESEARCH LABORATORIES: Glenville, Conn.—PLANTS: Glenville, Conn.; Franklin, Mass.; Newburgh, N. Y.; Detroit, Mich.; Westerly, R. I.—SALES OFFICES: New York, Boston, Chicago, Detroit, Cleveland, Rochester, Philadelphia, St. Louis, Atlanta, Dallas, San Francisco, Los Angeles, Portland, Seattle, Montreal

Pacific Coast Regional Sales Offices: San Francisco 3: 1235 Howard St.; Los Angeles 21: 763 E. 14th St.; Portland 14: 733 S.E. Union Avenue; Seattle 9: 404 Dexter Avenue

VERSATILITY: Plain felt seals are cut by American Felt to your order, with a dimensional tolerance of .005". Laminated felt seals consist of plain felt combined with one or more impervious septums of Hycar.

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Your compressors deserve this protective lubrication

CHECK THESE QUALITIES OF SHELL CLAVUS OIL

KEEPS DOWN CARBON — Shell Clavus Oil not only forms a minimum of carbon but that minimum is also soft... harmless. Valves stay clean and free working.

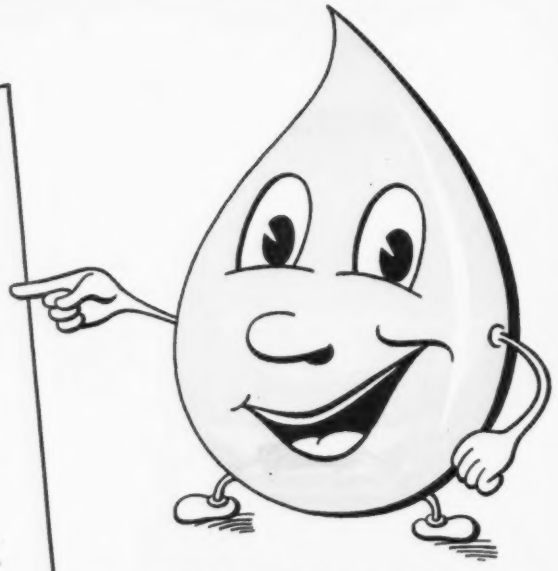
KEEPS DOWN GUMS—because this oil has all the unstable compounds removed.

ON THE JOB . . . HOT OR COLD — always ready to flow. No "dry starts" even in cold weather.

NON-FOAMING — soap-like compounds that cause foaming are taken out of Shell Clavus Oil by a special clay filtering process.

Shell Clavus Oil is the result of exhaustive study of compressor operation. It matches the job in every way, gives your compressors *protective* lubrication. Use it with confidence, for trouble-free service.

SHELL



SHELL CLAVUS OIL

Western Plant For Centrifugal Cast Iron Pipe

Pacific States Cast Iron Pipe Co. is now producing centrifugally cast iron pipe in their new $3,500,000 plant at Provo, Utah. The new foundry, with a capacity of 100,000 tons per year, operates by casting pipe in a revolving, water-cooled metal mold where the pouring ladle and mold are stationary. Three of these deLavaud casting machines are in operation, and two more are being installed.

Raw material is brought into the covered storage yard on a railroad spur. Two bridge cranes handle the material for weighing and charging directly into two 96 inch bore cupolas. Each cupola has a melting capacity of 25 tons per hour. A Hough payloader handles the coke from storage to charging buckets, with minimum damage to the coke.

Bridge cranes convey hot metal from the cupolas to casting machines and the hot pipe from casting machines to annealing furnace. An extensive shop has been provided for refinishing the steel molds used in the casting operation. The only sand used in this casting process is in the core which forms the bell end of the pipe. As a result, this is an unusually clean foundry operation.

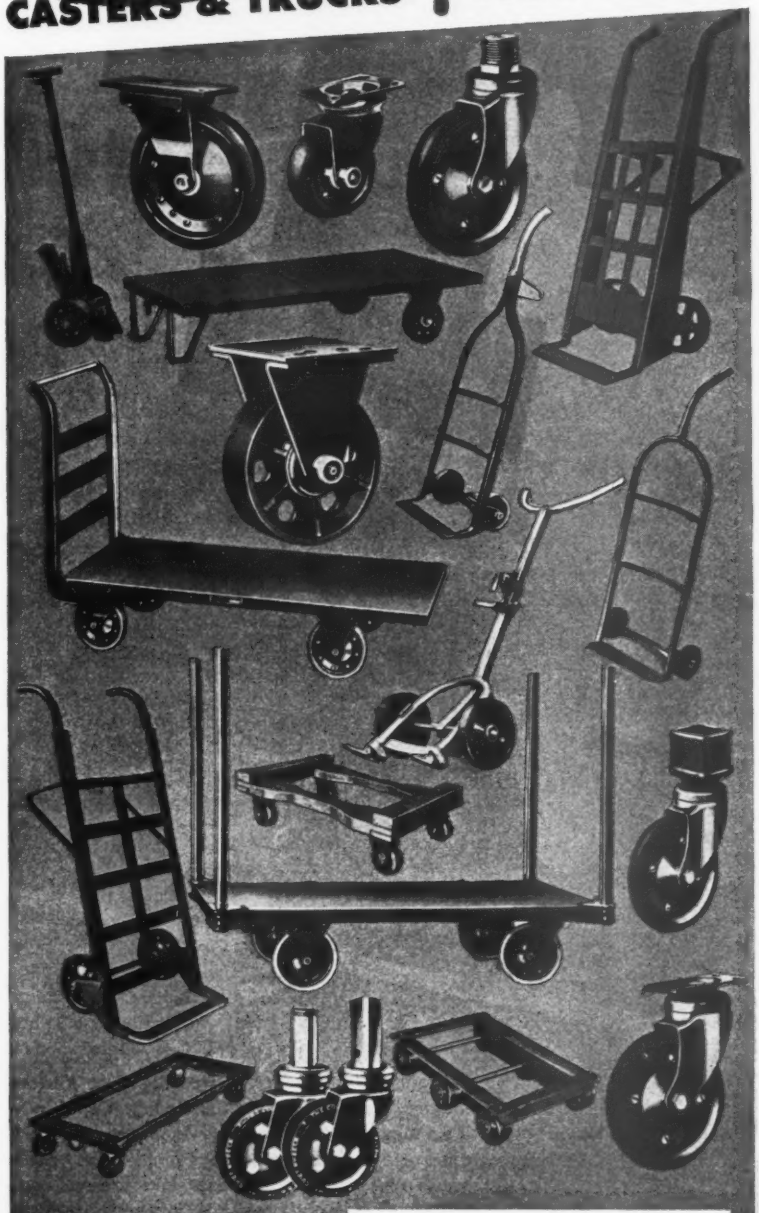
Milling Company Expands Western Operations

Colorado Milling & Elevator Co. during the past year has effected several changes and improvements to its physical properties. Milling operations previously conducted at St. Anthony, Ida., have been discontinued and this plant is now operated as a grain elevator.

For the purpose of replacing milling facilities at Dodge City, Kansas (destroyed by fire last April), St. Anthony, Idaho, and Ft. Collins, Colorado (this mill was closed in the year 1947-48), Colorado Milling & Elevator Co. has purchased from Omar, Inc., all the real and personal properties formerly owned and used by that firm in connection with its flour milling, grain, and related business at Omaha and Denver. This includes a flour mill at Denver, with a daily capacity of 1500 cwts., and grain storage capacity of 350,000 bushels, as well as all brand and trade names formerly used in the flour milling and related business; inventories of flour, grain, feed, merchandise, supplies, and sundry items, and automobiles and trucks.

The company also acquired during the last fiscal year, all the outstanding capital stock of the Jerome Milling & Elevator Co., a Utah corporation. Properties owned by that firm include a grain elevator and a bean warehouse.

Circle THE TYPE OF CASTERS & TRUCKS YOU NEED...



These are only a few of the 1458 different standard caster designs and 188 specialized hand trucks available at your local Colson warehouse. That's why, regardless of your needs, you'll find the right casters or trucks at Colson. Call, now, for complete information — no obligation.

and Call

COLSON EQUIPMENT & SUPPLY CO.

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235 Mission St. SAN FRANCISCO 5 GArfield 1-0282

TOUGH JOBS *Simplified* AT NATIONAL'S TORRANCE PLANT

The boring mill shown above is turning a kiln tread ring 11½ feet in diameter for a large cement company. But—work up to 14 feet in diameter is also handled on this large Betts mill—a typical example of just how *TOUGH Jobs are made EASY* at National's Torrance Plant.

If you have a manufacturing problem like this or *any* problem that involves steel *making, processing* or *fabricating,* it will pay you to call National. In a single plant, under one supervision, one control, National is equipped to make the steel into castings or to forge from ingots into required shapes and sizes. The forgings and castings can be machined, heat treated, welded and assembled into heavy products for heavy industry.

The manufacturing facilities of this largest completely integrated machinery manufacturing plant in the West are at your disposal to solve production problems.

This booklet "From Melting Furnace to Finished Product" is yours without obligation on request. It describes the complete facilities of National's Torrance Plant.

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Real Cooperation

Editor, Western Industry:

Please accept our sincere thanks for your cooperation in publishing "The Vanishing Craftsmen" in your June issue.

The photograph of the Joint Committee should attract your readers' interest, particularly if they note that the Committee is composed of two rival unions and top management.

Cooperation of this kind should help the stimulation in apprenticeship training.

Again many thanks for your interest.

W. H. OLIVER
Vice President
Oliver United Filters, Inc.
Oakland, Calif.

Long Distance Communication

Editor, Western Industry:

We would very greatly appreciate receiving, if possible, three copies of the May issue of *Western Industry*. This is the issue containing a story entitled "Will Long Distance Conveyors Supersede Rail Hauling."

Please forward these copies together with your covering invoice to the attention of the writer.

Thank you very much.

ANNE F. PERDUE
Secretary to Samuel S. Tyndall
Vice President
Hill and Knowlton, Inc.
Public Relations Counsel
New York

Labor of Industry

Editor, Western Industry:

Your labor articles are quite interesting and appear to be well designed for the industrial reader.

W. J. UREN
Director of Labor Relations
Phelps Dodge Corporation
Douglas, Arizona

A Definite Trend

Editor, Western Industry:

The operation of the M.S. ROLANDO, described in your July issue, is an interesting development in the unit-package handling of cargo. The Weyerhaeuser people have done some similar work on intercoastal handling, but have a much more complicated problem by reason of the longer voyage which necessitates more compact stowage. However, the beginning has been made and probably will be pursued as time goes along.

Most commodities, however, are still moving in package form without any real effort being made to consolidate those items into units which can be handled with greater protection to the packages and their contents. One great deterrent to unit handling has been the inability to develop a non-returnable pallet cheap enough to justify making up unit packages. However, with the advent of the compression-type arms on lift trucks it seems to me that we are about ready for experiments in handling case goods, particularly in packages which may be stripped with a limited amount of sheet fibreboard wrapping to provide the necessary stiffening,

(Continued on Page 17)

EDITORIAL COMMENT

Protests on the Horizon

IT was bound to come, sooner or later. Eastern and Midwestern farmers, hitherto unconcerned with Western reclamation projects, are likely to emit a flood of protest in a year or so,according to Earl L. Butz, head of the Department of Agricultural Economics at Purdue University. Speaking at the American Farm Economic Association convention at Laramie, Wyoming, in August, he said:

"Our farmers will not welcome curtailment of production by government fiat in an area of natural production where water comes free, while at the same time they are being taxed to expand output in unnatural and high-costing areas.

"They will be further aroused when they discover that the effect of much new irrigation will be to increase the competitive output of livestock and dairy products.

"They have no objection to irrigation that pays a reasonable share of its way. However, when reclamation becomes an end in itself, and on projects that are obviously marginal, to state it generously, then we need a new look at the entire process.

"It is deplorable that we tend to allocate an ever-increasing share of irrigation costs against such nonreimbursable items as flood control, recreation, wild-life and game development and the like, in order to justify another irrigation project.

"This type of subterfuge is usually not in the long-time public interest, if it results in uneconomic expenditure of public funds and an unnatural allocation of our production resources in agriculture."

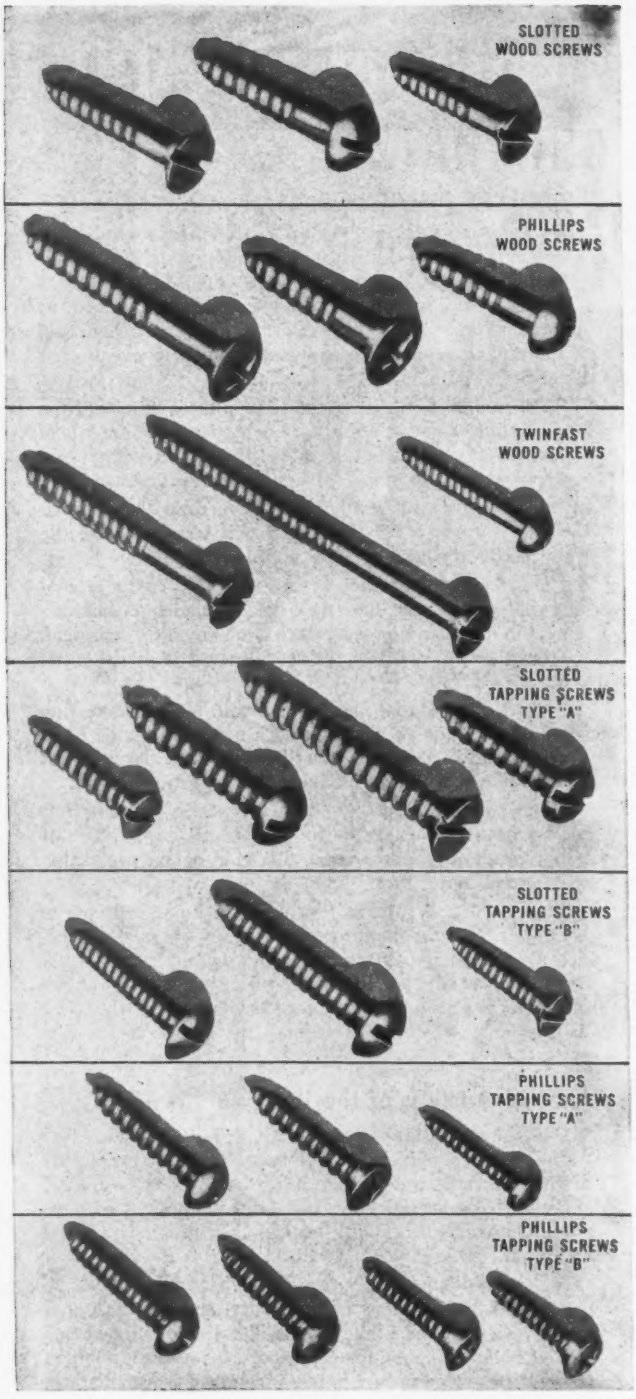
Professor Butz' forecast probably will be as welcome to Western ears as the morning alarm clock—but just as essential. If government financed irrigation projects are largely halted, it may be a blessing in disguise. In the long run we may be better off not to have the development of the West tied to the apron strings of federal appropriations.

Another Analysis of the West

IT is a bit surprising to have Carey McWilliams, author of "Factories in the Field" and other books not too generously disposed toward large-scale farming, business and industry, appraise the industrial growth of California rather enthusiastically in his forthcoming book, "California: The Great Exception."

Mr. McWilliams kindly loaned us manuscript copies of the two chapters dealing with industry, and while an analytical review of the whole book will fall to the lot of our regular book reviewers, the School of Management, Golden Gate College, we can highly recommend these two chapters as interesting and thought-provoking.

For instance, he describes Los Angeles as the first modern industrial city in which industry is widely dispersed, and asserts that technologically the East's headstart in industry, through the operation of obsolescence, could prove to be the West's major advantage. Again, he suggests that the location of nuclear energy establishments like Los Alamos and Arco in the intermountain region may give promise, at long last, of transforming what was long regarded as the least productive into one of the most productive areas of the United States.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The pioneer days of the West may be a thing of the past in some respects, but not in all. Industry is still pioneering. Take ourselves, for example. We are the first manufacturers on the West Coast to produce Wood Screws (both conventional types and TWIN*fast*), Sheet Metal Screws and screws with Phillips Recessed Heads.

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National
HEADED AND THREADED
PRODUCTS

MAIL BOX *(Continued from Page 15)*

and thereby dispense with the need of a pallet of any kind in carloading or in stowing in a ship. Present cargo boards could be utilized for the hoisting operation of such packages into the ship itself.

It might be interesting to note that we have had recently some experience with pig metal stripped in bundles so that cars are loaded and unloaded with lift trucks and the pigs were actually stowed in the hold of a vessel with lift trucks. If this sort of thing is universally adopted it can very materially reduce the handling and freighting costs of the pig-metal industry since it is possible to stow about twice as fast in this manner as it is when the pigs are loose.

There are of course some labor obstacles that will have to be surmounted in getting universal acceptance of package handling, but while these are difficult, we should be capable of solution. From the point of view of water-borne business, particularly over the domestic routes, it seems to me that their salvation depends on the development of unit packaging systems that will permit cargo to move from the plant of the shipper to the plant of the consumer without breaking bulk, thereby minimizing the amount of labor used in each handling operation and effectively reducing the loss through damage and pilferage.

It has been quite interesting to note that recently on the Trans-Atlantic route there has been a development in the handling of liquor in this sort of a way. What has been done in the case of liquors can be done in the case of many other industries.

We applaud your continued publicizing of each new instance of this form that comes to your attention, as it seems that the way business accepts new methods is primarily by way of what someone else has done. Every industry will, of course, have to do their own research and cost figuring, but if freight rates are to be held at a reasonable level, the shipper and consignee have a very real stake in providing packaging methods which will reduce the cost of the various physical handling operations to a minimum, and if products are not to be placed out of the reach of most by rising freight costs, then it is incumbent upon the shipping public to do what they can to help the carriers make economies.

The terminal industry, generally speaking, has gone entirely to a fork-lift operation. The big item of cost is in getting cargo palletized or breaking it from pallets to permit its delivery. With rising wages and decreased productivity handling charges are alarmingly high. The quickest contribution that can be made to the solution of this problem is an acceptance by the shipping public of the idea of providing unit packages that may move from shipper to consignee.

K. M. KENNELL
Vice President
Shaffer Terminals, Inc.
Tacoma, Washington

We Convey Information

Editor, Western Industry:

Thank you very much for sending me the tearsheets of the article you printed in your May issue on Sherwood Swan's conveyor system.

This particular installation has been of great interest to us, and we appreciate learning more about it through your editorial presentation.

CLAUDE V. MECONIS
Assistant Advertising Manager
The Rapids-Standard Co., Inc.
Grand Rapids, Michigan

(Continued on Page 19)

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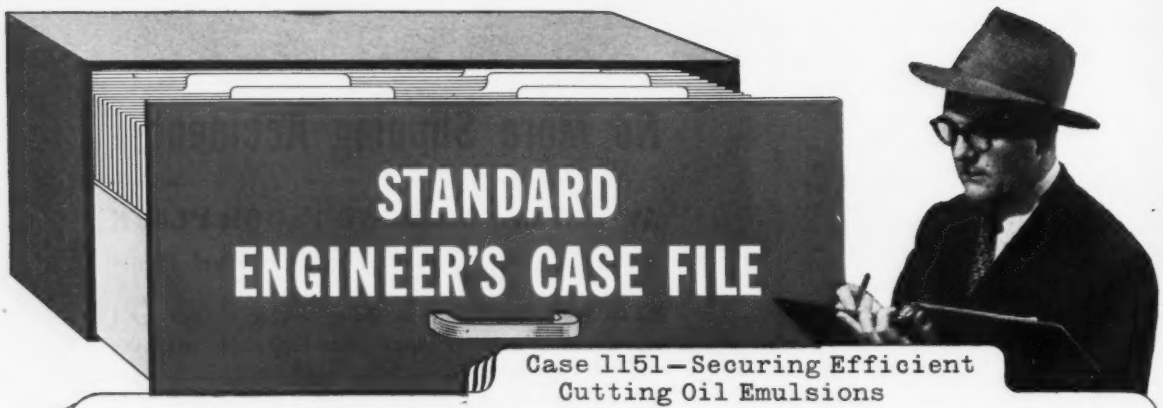
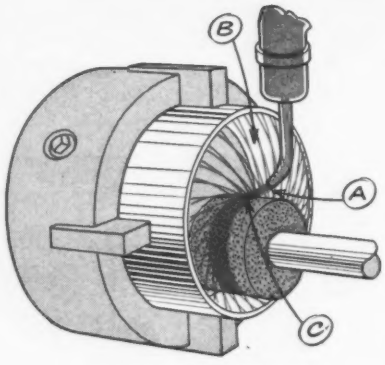


Case 1151—Securing Efficient Cutting Oil Emulsions



WHEEL-GRINDING OPERATION

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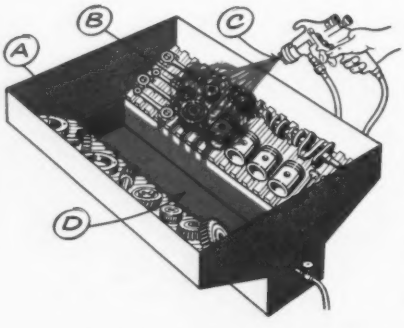
B. Cools, lubricates and flushes work and tool rapidly ...helps produce better work finish.

C. Defoaming agent minimizes formation of air bubbles.

Another product, Calol Soluble Oil HV, is generally used undiluted in hard service such as drawing and tube-bending operations. Its solubility allows easy decreasing of work with water.

Case 1183—Reducing Cleaning Time on Parts and Tools



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MAIL BOX *(Continued from Page 17)*

Sales Force

Editor, Western Industry:

In your July, 1949, issue you had printed an article called "Shipper Snips Bulk Cargo Cost With New Design for Loading" on page 35 of that issue. The company mentioned in this article, Irwin-Lyons Lumber Company, uses Gerrard equipment for reinforcing their bundles of lumber and, as is natural, we were especially interested in the photographs of the loaded steamer "Rolando" which show these bundles in fairly good detail. We wonder if it would be possible for us to borrow the photographs used on pages 36 and 37 showing the bow deck view of the lumber and the side view of the entire ship. We would like to re-photograph for our own use and then would be sure to return them to you.

We are interested from a standpoint of advising our sales force about this shipment, for it is not only dramatic, but one of the largest shipments we have ever seen strapped with our round steel strapping medium.

W. J. AUBURN
Advertising Manager
Gerrard Steel Strapping Company
Chicago, Ill.

CALENDAR OF MEETINGS

Oct. 4—Institute on Industrial Logistics, L. A. Chamber of Commerce, at Riviera Country Club.

Oct. 5—Institute on Industrial Health, L. A. Chamber of Commerce, at Riviera Country Club.

Oct. 6—California Manufacturers' Assn. annual meeting, Ambassador Hotel, Los Angeles.

Oct. 7—California Natural Gas Assn., Ambassador Hotel, Los Angeles.

Oct. 10-15—American Society for Testing Materials, Fairmont Hotel, San Francisco.

Oct. 14-15—Paint and Varnish Production Clubs of the Pacific Coast, San Francisco.

Oct. 17-20—Employer-Employee Relations Conference, Merchants & Mfrs. Assn. of Los Angeles, at Palm Springs, Calif.

Oct. 18-19—Pacific Coast Management Conference, Claremont Hotel, Berkeley, Calif.

Oct. 19—Manufacturers Assn. of Colorado, Denver, annual dinner meeting.

Oct. 19-21—American Ceramic Society, West Coast regional meeting, Ambassador Hotel, Los Angeles .

Nov. 1-9—Pacific Chemical Exposition, Civic Auditorium, San Francisco.

Nov. 3-5—Pacific Northwest Personnel Management Assn., Vancouver, B.C.

Nov. 6-9—United Western Miners Conference, Reno, Nevada.

Nov. 7-9—California Fertilizer Assn., Palace Hotel, San Francisco.

Nov. 10-11 — National Symposium of Air Pollution, Huntington Hotel, Pasadena.

Nov. 14-16—Pacific Logging Congress, Seattle.

Nov. 17-19—Rocky Mountain Oil and Gas Assn., Cosmopolitan Hotel, Denver.

Jan. 18 - 20 — American Management Assn., general management conference, St. Francis Hotel, San Francisco.

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UNITED STATES STEEL

THE WESTERN OUTLOOK . . . News · Statistics 1

No highly significant trends visible; Production off but steady growth of West keeps demands for housing, schools and utility connections upward; Population influx causes unemployment rise; Lumber gets lift

OTHER than the fact that business generally is down from last year, there are no highly significant trends visible in the Western industrial economy. Food processing is lighter this year, lumber production has been down but things have begun to improve somewhat, steel output is down from 1948 but still very healthy, oil refineries are suffering from a surplus of heavy crudes, nonferrous metals have seen some upward turn, and manufacturing employment in the Coast states was down about 50,000 in July from a year ago.

Contrariwise, gas and electric energy loads in the commercial and industrial fields are increasing, another proof that the West's population is steadily gaining. Gas and water pipes must be laid, more street lights put in and more schools built. Unemployment forecasts for the coming months are unfavorable, for which the obvious explanation is an influx of population too great to be immediately absorbed, not that business is declining.

The most severe drops in wholesalers' sales on the Coast have been in machinery, general hardware and industrial supplies. One lone exception in wholesalers' sales in June figures was electric goods on the Coast. These showed a gain of 1 per cent. Pacific Northwest carloadings for the first seven months were the lowest since 1940.

Montana, which lost population in wartime, seems now to be experiencing a pick-up. All major industries have recorded a

(Continued on Page 23)

Business Activity Indices in Per Cent of 1935-1939 Average
(Taken as basis of 100)

	May	June	July
[1]Arizona	322.4	318.6	325.4p
[2]California	225.5	219.1	221.7p
[3]So. California	268.9	264.4	267.7p
[4]Pacific N.W.	218.2p		
[4]Puget Sound	210.1		
[4]Inland Empire	213.4		
[4]Lower Columbia	230.4p		

1) Valley National Bank (Phoenix) index, based on a weighted composite of retail sales, agricultural income, and employment in mining, manufacturing and construction, and seasonally adjusted. 1940 = 100.
2) Wells Fargo Bank & Union Trust Co., index based on the following components: Industrial production, freight carloadings, bank debits, department store sales (weighted 4, 3, 2, 1, respectively, and adjusted seasonally).
3) Security-First National Bank of Los Angeles index, based on the following components and weights, and adjusted seasonally: department store sales, 15; building permits, 5; Los Angeles bank debits, 20; residential city bank debits, 5; agricultural city bank debits, 5; industrial employment, 20; industrial power sales, 13; railroad freight volume, 6; telephones in use, 7; real estate activity, 4.
4) Index compiled by Bureau of Business Research, University of Washington. Basis of compilation not indicated.
p) Preliminary estimate.

MANUFACTURING EMPLOYMENT

Estimated Number of Employees—Source: U. S. Bureau of Labor Statistics and State Agencies

	WASHINGTON		OREGON		CALIFORNIA		TOTAL PACIFIC	
	1948	1949	1948	1949	1948	1949	1948	1949
May	152,350	171,500*	133,600	127,700	696,500	696,800	982,450	996,000
June	164,200	174,250	144,600	130,900*	714,100	698,600	1,022,900	1,003,750
July	179,900	175,650*	153,200	136,600	742,100	711,400	1,075,200	1,023,650

*Preliminary.

	MONTANA		IDAHO		WYOMING		COLORADO		NEW MEXICO		ARIZONA		UTAH		NEVADA		TOTAL MTN.	
	1948	1949	1948	1949	1948	1949	1948	1949	1948	1949	1948	1949	1948	1949	1948	1949	1948	1949
May	17,000	.....	19,500	18,600	6,100	6,000	.....	.....	9,400	9,850	16,200	15,500	25,219	26,000	3,400*	3,100	.....	.....
June	17,700	17,900	22,500	20,200	6,800	6,300	.....	.....	9,550	10,150	16,500	14,100	26,700	27,200	3,500	3,200	.....	.....
July	18,200	18,800	24,900	21,000	6,900	.....	.....	.....	9,800	10,250	15,700	14,400	.....	.....	3,400	3,100	.....	.....

*Revised.

WHOLESALERS' SALES

In thousands of dollars. Percentage changes are from corresponding month of preceding year. From Bureau of the Census.

MOUNTAIN

	Automotive Supplies	Change	Electrical Goods	Change	Furn. and house furn.	Change	Groc. and foods exc. farm prod.	Change	General Hardware	Change
January	575	— 3	2,492	— 11	365	—10	....	....	1,326	+ 5
February	776	— 3	2,791	— 4	...	....	....	....	....	....
March	881	— 5	3,582	+ 1	. .	....	....	....	....	....
April	762	—11	3,239	— 15	...	....	....	....	1,914	—13
May	849	— 8	3,546	+ 1	236	— 4	....	....	....	....
June	854	—18	3,233	— 19	282	— 4	....	....	1,694	—10

PACIFIC

											Industrial Supplies	Change	Lumber & bldg. mat.	Change	Mch. equip. and supplies excl. elec.	Change
Jan.	2,061	—14	9.737	— 10	1,188	— 32	4,308	....	4.774	—14	1,508	—20	....	....	....	....
Feb.	1,383	—20	11,385	— 11	271	— 33	3,988	....	5,172	—21	1,876	— 2	923	—37	...	....
March	2,315	—11	13.632	— 19	...	.....	9,163	....	6,284	—16	2,009	—10	1,085	—18	634	—30
April	2.320	—10	10.629	— 20	214	— 24	3.911	....	6.974	—21	....	....	1,723	— 5	630	—24
May	2,293	—11	11,705	— 5	267	— 22	7,810	....	6,284	—18	1,849	—12	1,717	—14	782	— 8
June	1,695	—13	13,106	+ 1	211	— 31	5,280	....	5,866	—23	1,639	—22	1,643	—16	544	—33

*Full-line wholesalers.

FREIGHT

Cars of revenue freight, railroad carriers in 11 Western states.

(Compiled from Assn. of Am. R.R. weekly reports)

	Carloadings		Received from Eastern Connections	
	1948	1949	1948	1949
February	593,982	526,425	327,746	328,279
March	455,468	451,267	269,437	264,223
April	508,140	489,843	271,524	259,297
May	656,333	631,651	350,986	348,190
June	593,121	566,042	303,680	280,659
July	588,842	532,120	287,565	260,419

*5-week period.

TRUCK TRAFFIC

(Number of commercial trucks entering state through border checking stations)

	—CALIFORNIA—		— ARIZONA —	
	1948	1949	1948	1949
February	11,924	11,863	.....	.....
March	13,380	14,377	19,511	22,336
April	13,776	14,755	18,133	22,129
May	14,741	15,681	19,059	21,182
June	14,816	15,365	19,312	21,504
July	14,763	14,774	19,557	21,465

BANK LOANS

Industrial, commercial and agricultural (In millions of dollars)

From weekly reporting member banks of Fed. Res. System in 7 western cities: L.A., S.F., Portland, Seattle, Tacoma, Spokane, and Salt Lake.

(Average of Wednesday reports)

1949	
February	2,191
March	2,148
April	2,099
May	2,033
June	2,003
July	2,416

BANK DEPOSITS

(In millions of dollars—adjusted)

Daily average month, all member banks in 12th Federal Res. Dist. Demand deposits excluding U. S. Gov't deposits, cash items in process of collection, and interbank deposits.

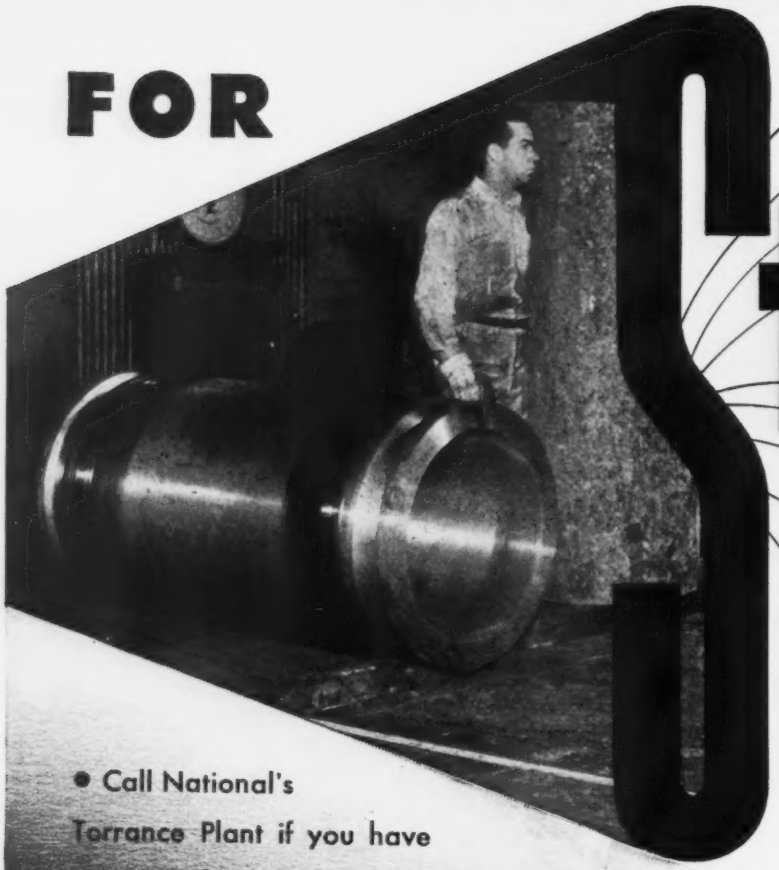
1948	Net Demand Deposits	Time Deposits
February	8,218	6,031
March	8 760	6,124
April	8,421	6,110
May	8,366	6,109
June	8,322	6,136
July	8,321	6,154

CONSUMERS' PRICE INDEX

From Bureau of Labor Statistics. 100 = 5 yr. Avg. 1935-39

	Los Angeles	San Francisco	Portland	Seattle	Denver
Feb. 15	171.3	....	....	174.3	....
Mar. 15	171.0	174.6	....	....	....
Apr. 15	171.2	....	177.6	....	169.9
May 15	169.6	....	....	172.5	....
June 15	168.7	173.7	....	....	....
July 15	167.2	....	175.3	....	167.8

FOR Steel



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C.B.S. STEEL AND FORGE

INDEX OF DEPARTMENT STORE SALES

Index numbers, 1935-39 daily average=100 with seasonal adjustment. Compiled by Federal Reserve Bank.

	Total 12th Fed. Res. Dist.		Southern California		Northern California		Portland		Western Washington		Eastern Washington and northern Idaho		Utah and southern Idaho		Phoenix	
	1948	1949	1948	1949	1948	1949	1948	1949	1948	1949	1948	1949	1948	1949	1948	1949
May	357	339	403	368	313	305	340	322	345	358	367	385	352	319	481	434
June	362	335	410	368	316	308	345	325	357	344	375	355	347	309	454	406
July	358	323	404	355	310	290	356	306	354	349	382	350	327	295	478	420

INDEX NUMBERS OF WHOLESALE PRICES BY GROUPS OF COMMODITIES AND BY MONTHS

Bureau of Labor Statistics, Washington 25, D.C.
(1926 = 100)

1949	Farm Products	Foods	Hides and Leather Products	Textile Products	Fuel and Lighting	Metals and Metal Products	Building Materials	Chemicals and Allied Products	House Furnishing Goods	Miscellaneous	ALL COMMODITIES
May	171.2	163.9	179.3	[illegible]	130.1	168.0	194.0	118.2	146.2	113.6	155.7
June	168.5	162.4	178.8	139.2	129.9	166.7	191.4	116.8	145.3	111.3	154.4
July	165.8	161.3	177.6	138.2	129.9	167.4	189.1	118.1	143.2	110.2	153.4

(Continued from Page 21)

gain in number of new business enterprises, and non-farm employment in July reached an all-time high. Manufacturing (including smelting, logging, lumbering, and food processing) shows a gain of 61.5 per cent from the wartime low of 1944 up to the present.

Washington has shown less falling off in employment this year than Oregon, although the Boeing plant is facing a crisis over the threatened move of much military aircraft production to Wichita. In southern California, expanding aircraft production helps the situation considerably.

A bank debit comparison of some Western cities for the second quarter of 1948 and 1949 is as follows:

	2d Quarter, 1948	2d Quarter, 1949	Per Cent Change
Albuquerque	$ 204,538,000	$ 243,698,000	+19.1
Sacramento	1,286,679,000	1,428,966,000	+11.1
Salt Lake City	641,090,000	672,626,000	+ 4.9
San Francisco	6,746,238,000	7,078,192,000	+ 4.9
Seattle	1,990,262,000	2,004,430,000	+ 0.7
Denver	1,428,680,000	1,424,726,000	— 0.3
Los Angeles	9,052,042,000	8,973,318,000	— 0.9
Phoenix	589,523,000	550,037,000	— 6.7
Tucson	186,666,000	172,449,000	— 7.6
Fresno	357,617,000	316,765,000	—11.4
San Diego	700,003,000	620,316,000	—11.4

Whether it is so much nuclear energy in the form of Uncle Sam's dollars being put into Los Alamos that makes Albuquerque head the bank debit list is not apparent. Nor is it clear why Phoenix should be a tail-ender (along with San Diego) when Arizona's mining output for the first half of the year is up 8.7 per cent, its utility income up 8.4 per cent, and its retail sales off only 3.5 per cent and manufacturing production 4.2 per cent.

Electric Energy

Residential and commercial leads throughout the West are continuing to rise, indicating increasing population. In California, for example, they are 5 to 10 per cent above last year. While the industrial load has not declined, the increase curve has pretty much flattened out. In the Pacific Northwest, for example, industrial loads are 8 to 9 per cent below estimates.

Pacific Northwest apparently will be short of power again next winter, because the stream flows in the Columbia basin are off; it was the sixth lowest August in 22 years. For the present, however, supply is plentiful and steam power not being generated to any extent. The Pacific Southwest Power Pool estimates that there will be 700,000 acre feet less runoff for that whole area than previous indications, but Boulder Dam looks for this to be a 6,000,000 kilowatt hour year. Arizona in much better position than earlier this year, with less pumping required and no curtailment expected.

ELECTRIC ENERGY

(Production for Public Use—In thousands of kilowatt hours. Source: Federal Power Commission)

	Mountain		Pacific Northwest		California		Total Pacific	
	1948	1949	1948	1949	1948	1949	1948	1949
January	1,426,511	1,524,171	1,749,203	1,913,279	1,683,736	1,893,025	3,432,939	3,806,304
February	1,363,093	1,423,744	1,648,682	1,721,271	1,590,049	1,610,229	3 238,731	3,331,500
March	1,200,824	1,312,949	1,628,060	1,774,425	1,572,699	1,688,540	3,200,759	3,462,965
April	1,232,358	1 267,957	1,618,678	1 655,765	1,424,480	1,736,578	3,043,158	3,392,343
May	1,248,630	1,218,907	1,555,721	1,658,316	1,559,727	1,857,778	3,115,448	3,516,094
June	1,453,761	1,470,751	1,455,985	1,704,943	1,746,341	2,082,002	3,202,326	3,786,945

*Revised.

Oil

Western industrial users of heavy fuel oils are tantalized by the same problem that has developed in a good many other commodity markets: How long to hold off before replacing dipping inventories.

Those who believe prices of industrial fuel oil are now hitting bottom and may advance soon argue that the present surplus piled up on the West Coast largely because of (1) the maritime strike, (2) unusually heavy snowfall which reduced utilities' consumption of steam power, (3) curtailment of Oriental trade, and (4) transfer of important Navy forces out of the Pacific. They also have the natural expectation that there will be some rebound after price cuts as drastic as those recently occurring.

Union Oil has just cut its posted price on bunker fuel from $1.60 per barrel to $1.25 at this writing, giving official recognition to a considerable volume of transactions locally at less than the posted figure. Next Union revealed arrangements to ship and sell 2,000,000 barrels of heavy oil to eastern oil firms this winter—the first large shipment of this sort to Atlantic ports in 15 years. The price is said to be about $1.50 a barrel, delivered at N.Y. harbor, or about the same as that now prevailing in the east.

Transfer of large quantities out of the glutted western market will help take the pressure off prices here, although recently some small Los Angeles refiners have cut prices of sulphur-bearing fuel oils to offset competition from cheap Texas gas.

Buyers of lighter oils such as home heating fuel appear to have waited too long for further price declines that did not materialize. Now that winter approaches, they are confronted with rising prices. Whether this will happen also to Western industrial users of heavy fuel oils is problematical, although revised forecasts by the Bureau of Mines call for reviving demand nationally during the fourth quarter for the residual oils.

The oil industry has been slowly readjusting itself to the oversupply by closing in wells producing heavy crudes, and by refinery change to boost output of lighter oils. These changes will take effect only gradually, however, over a period of months.

The Bureau of Mines figures that the year 1949 will finish with a higher total U. S. demand for petroleum products as compared with 1948, but slightly smaller exports; imports about 11 per cent higher, and domestic production down about 5 per cent.

Additions to the nation's supply will have been 4 per cent less than last year. Although over-all drilling activity has held up so far, projected plans for new exploration work have been cut back because of the less favorable market conditions.

The weaker market for heavy crude is slowing the tempo of exploration in Utah. Drilling continues on sixteen wildcat wells, however. At

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PETROLEUM

(California, Oregon, Washington, Arizona, Nevada)

(From Bureau of Mines)

	CRUDE PRODUCTION (Barrels, daily avg.)	TOTAL DELIVERIES (Thousands of barrels daily) GASOLINE		GAS OIL & DIESEL		HEAVY FUEL OIL		ALL PRODUCTS	
	1949	1948	1949	1948	1949	1948	1949	1948	1949
January	941,000	356	369	143	172	392	426*	1,016	1,026
February	947,000	360	365	...	171	398	391	1,025	1,059
March	949,000	336	368	141	152	369	386	1,036	1,056
April	942,000	353	364	129	120	372	370	1,016	1,017
May	927,000	362	372	141	126	386	384	1,021	1,001
June	921,000	350	380	125	132	379	339	1,023	994

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...THE FAMOUS PURPLE* OIL!

1. Back in the 1930's a new and improved Diesel engine went on the market. It was an excellent engine, but on regular oils its valves stuck and it loaded up with sludge. Because of this problem, Union Oil scientists went to work and developed an oil with a cleansing agent. They called it D5X. This new oil kept the new Diesel remarkably clean!

2. D5X was the forerunner of our present-day compounded oils and it did much to make possible the development of the dependable, economical, modern Diesel engine. By 1940 more new compounds had been added to the oil and its name was changed to T5X. With the new compounds and a 100% pure, paraffin base, T5X was found to be ideal not only for Diesels but for gasoline and gas powered engines as well!

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4. Since the war T5X has proved itself under the most severe tests and operating conditions. Its exclusive detergent compound retards sludge to a remarkable degree. A special inhibitor retards oxidation and gives high heat stability. A neutralizing agent combats acidity. Still other additives guard against rust and corrosion. Now thoroughly tried and proved, T5X is available to you as the finest heavy-duty motor oil money can buy!

For full information on T5X phone your local Union Oil Representative or write Sales Dept., Union Oil Company, Los Angeles 14, California.

*T5X gets its distinctive color from an exclusive ingredient that helps give the oil its remarkable stability.

76 UNION **UNION OIL COMPANY** OF CALIFORNIA

(Continued from Page 23)

least seven scientific prospecting crews are working there as result of Equity Oil's Ashley Valley discovery. Regardless of current market fluctuations, there's far too much indication of oil in the great Wyoming-Colorado-Utah basin for the petroleum industry not to follow up on the recent showings.

Coal

Bituminous coal mines in the intermountain area began increasing production in August, moving up from an operation of three to four days per week. Demand is in the seasonal upturn and September will probably bring a five-day week, the limit allowed by John L. Lewis.

BITUMINOUS COAL AND LIGNITE

(In thousands of tons—From Bureau of Mines)

	Colo.-N. Mex.		Wyoming		Utah	
	1948	1949	1948	1949	1948	1949
April	375	375	381	300	249	520
May	564	346	523	426	711	485
June	509	288	480	327	568	356

	Montana		Wash.-Alaska	
	1948	1949	1948	1949
April	193	171	109	104
May	208	200	134	87
June	191	204	126	100

Steel

Steel mills report orders having picked up in recent weeks, buyers having gotten their inventories well down. Demands from the construction industry continue heavy and furniture industry taking more steel, as result of increased activity since the summer shows. A new source of iron has opened up in southern California, near Twenty-Nine Palms on the Colorado desert, estimated to contain from 1,000,000 to 3,000,000 tons, of which 300,000 tons are above the surface. It has been leased by Storey-Simpson Co. of Santa Ana. The lessees assert that it is of high quality and will be suitable for open hearth operation, although the present sales are to cement companies in Arizona and California and foundries on the Pacific Coast. The structural steel mill at Geneva has suspended operations for lack of orders. Two of Geneva's three blast furnaces, six of the nine open hearths and the plate mill are still in operation.

IRON AND STEEL

Western Area of the United States

From American Iron and Steel Institute (in net tons)

	Pigiron Output	Percent of Capacity	Steel Output	Percent of Capacity
February	209,082	93.6	402,533	99.7
March	235,176	95.0	451,926	101.1
April	216,431	90.3	414,794	95.8
May	194,525	78.6	405,170	90.6
June	170,546	71.2	351,917	81.3
July	170,475	69.1	338,861	76.0

ALLOY STEEL

(In thousands of bbls.; from U. S. Bureau of Mines)

	Output	Carbon Ingots, Hot Topped*
February	5,945	13,769
March	8,127	13,896
April	5,068	12,999
May	4,423	9,690
June	4,990	7,051
July	4,452	6,828

*Included in total steel.

Aluminum

Bottom seems to have been touched in early summer, and August orders picked up all the way across the board, utensils picking up particularly well, apparently inventories having been exhausted and seasonal production for the holiday trade resumed. Trentwood rolling mill now running about 55 to 60 per cent of capacity. Both Permanente and Reynolds will be able to stockpile pigs under a tentative government arrangement giving the former 40 per cent of the government stockpile requirements for the fiscal year ending June 30, 1950, and the latter 60 per cent.

Aircraft

Wage negotiations in southern California's aircraft industry so far have failed to develop any real fireworks. Most issues were settled amicably enough after early strike threats. Wage increases mostly are running about five cents per hour, with some "fringe benefits" such as changes in holiday and sick leave pay.

The Department of Labor has been conducting hearings in Washington on minimum wage rates in aircraft, which have not been reviewed since 1938 hearings set the "floor" at 50 cents an hour. UIO-UAW made an initial effort to get the new figure pegged at $1.25 but later receded to $1, while the industry has submitted figures indicating that minimum and starting wages now range from 80 to 95 cents an hour.

Since most Western plants now pay a minimum of $1.10 or better, the controversy is relatively mild. It could assume sudden meaning, however, in view of a major economic break, and it would take on importance if many large aircraft contracts were moved to the midwest and southern areas where wages are lower. Since the Walsh-Healy Act require these minimum wages to be paid on most government contracts of more than $10,000, these "floors" underlie about 90 per cent of the entire industry. Effect of a high minimum rate might help bolster the competitive position of West Coast aircraft builders, although the bulk of military plane contracts now are on a "cost-plus" basis.

Seattle is fighting to keep the Boeing B-47 contracts from being transferred to Wichita, although strong pressure is being exerted on the ground of strategic considerations favoring dispersal. Southern California aircraft men have heard little recently of the "away-from-the-Coast" movement much talked of several years ago.

United Air Lines has ordered five more DC-6's from Douglas, bringing the UAL fleet of the new ships to 44. Ryan has whacked $1,000 off the price of its Navion small personal transport plane, which now will sell for $10,985. A newcomer in the private field is Atlas Aircraft, which has been authorized to sell stock for a manufacturing venture with the "H-10" a low-cost, four-place, 220-h.p. all metal- plane to be made at Hemet, California.

Lumber

The lumber market has chalked up a lift for fall with Douglas fir, one of the hardest hit in recent months, making one of the best recoveries. The 106,000,000 feet of Douglas fir region orders the second week in August was the fourth highest week of the year and placed 1949 orders 105,000,000 feet ahead of production. The 108,000,000 feet of production that week was the highest of any week of the year.

This upswing has been attributed to low inventories in retail yards generally, the sustained high level of construction and the summer vacation layoffs at sawmills. A pinched rail car situation in western Oregon has helped slow movement of lumber to Eastern and Midwestern markets.

Western pine, which hasn't had the market fluctuations suffered by Douglas fir, hasn't had the comeback, either. Its prices have been sliding slowly, but now have turned upward in a number of markets. Second quarter shipments were the biggest in history and it now appears that the third quarter will probably equal it.

The Western pine industry now estimates 1949 production at at least 20 per cent above prewar at "somewhere above 6 billion feet." It would be about 10 per cent under the record-breaking level of last year.

LUMBER

(In thousands of board feet)

From West Coast Lumbermen's Association (Douglas Fir, Sitka Spruce, Port Orford Cedar, West Coast Hemlock, Western Red Cedar):

Year through July	1947	1948	1949
Production	4,772,629	5,052,620	4,583,144

From Western Pine Association figures (Idaho White Pine, Ponderosa, Sugar Pine and associated species):

Year through July	1948	1949
Production	1,732,578	1,525,805

From California Redwood Ass'n figures (includes redwoods and whitewoods):

Year through July	
Production	279,128

Plywood

Production capacity is still quite far ahead of present market demands and this is reflected in some desperation selling. Industry-wide, however, intensive promotion on a bigger scale than ever before attempted is beginning to get under way. Promotion, previously confined to trade outlets, is now to be extended to the consumer directly, in addition. The depressed market is causing a healthy overhauling of production techniques and management and further product innovations are seemingly in prospect. Log prices are easing somewhat.

Pulp and Paper

Pulp production is up again as some mills, which had been closed entirely, resumed production. Prices have been sagging for some time, but there has been considerable variation, according to grades produced. Rayon-type bleached sulphite was hard hit and so were kraft pulps. Pulp imports to the United States were lower for the first half of the year.

Domestic producers have recently been supplying a slightly larger percentage of total needs, but foreign pumps are tending to offer more price competition with the domestic output, whereas last year the foreign pulps commanded a premium. Rayonier, Inc., operating three mills in Washington, reporting sales for first six months of 1949, showed a decline to $24.7 million from $31.4 million in same period 1948. Pulp producers generally are reported able to absorb price declines without damage and the more optimistic viewpoint prevailing in business, with inventories again being built up, holds out a reasonable prospect for fairly stable operations.

PULPWOOD

(Pacific Northwest)

(Cords of 128 cu. ft., roughwood basis. Source: Bureau of Census)

	Receipts	Consumption
April	286 232	2?8 503
May	316,352	255,563
June	368,695	251,302

Nonferrous Metals

Projected reopening of a few closed nonferrous metal mines in late summer indicated the production trend would be slightly upward in September.

New GOULD "Z" Plate—

THE ONLY PLATE WITH THE SOLID, NON-POROUS GRID

Gould research engineers have developed a revolutionary new plate containing the only grid in existence that is non-porous and completely solid all the way through.

This new, non-porous "Z" grid is the result of "Progressive Solidification"—a new, advanced casting technique developed and perfected by the Gould Research Laboratory and proved in Gould's own pilot plant.

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More than ever—America's
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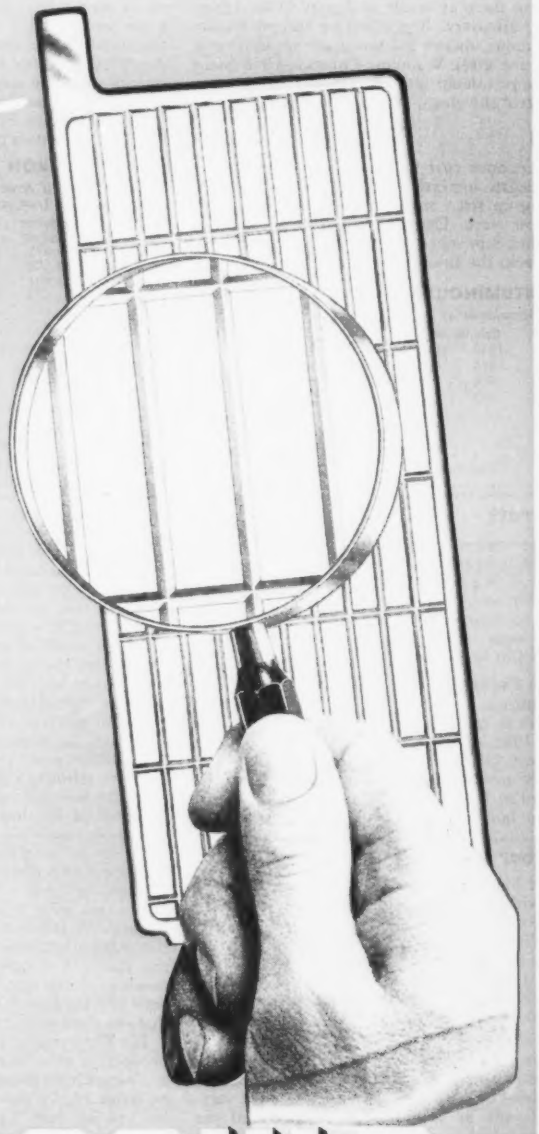

GOULD
STORAGE BATTERY
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Always Use Gould Automobile and Truck Batteries

Cement

Demand continues good. In the Seattle area, Superior Cement Co. have taken over the plant which Permanente had to relinquish to the government, and Permanente in turn has reopened its Duwamish storage plant, which has a capacity of 40,000 sacks a day and 80,000 barrel bulk capacity silos. The Duwamish plant will be supplied by water from San Francisco.

Furniture

Attendance at the Los Angeles furniture show at the end of July attracted 6,100 buyers, approximately 10 per cent lower than the January market but slightly above show in July a year ago. Prices were down from 5 to 10 per cent. One group of manufacturers cut the price of existing merchandise, the second held the same price but improved quality and style, while a third group designed new items falling into lower price brackets. Use of more foam rubber for cushioning very evident, and continuing influence of television on home furnishings apparent in the way of more mobility for seating pieces, completely new types of ottomans and hassocks for televiewing, lighter scale and weight pieces for easy movement, and revolving occasional tables for table model sets.

Flour

Although grinds in Western mills have not increased, selling in recent weeks has been fairly good on a 30-60 day basis. Mill feeds hold a strong position, due to the corn crop not being so big, and bookings run as far ahead as 90 days.

CEMENT

(In thousands of bbls.; from U. S. Bureau of Mines)

	—California—		Oregon - Wash.		Colo.-Wyom. Mont. Utah - Idaho	
	1948	1949	1948	1949	1948	1949
Feb.	1,824	1,593	414	208	315	279
March	2,013	1,828	515	590	301	482
April	2,140	2,006	570	649	404	506
May	2,019	2,042	559	652	415	488
June	2,022	2,066	586	636	394	529
July	2,077	2,011	638	657	487	653

Building Materials

Building costs remained practically unchanged in the West in June and July, according to American Appraisal Company's index, which is based on 100 for 1913, and reflects only the cost trend in each city but does not indicate the relative trend between cities. The index is as follows:

	All-Time High Oct. 1948	June 1949	July 1949
Denver	458	438	438
Seattle	523*	509	506
San Francisco	460	445	445
Los Angeles	488	475	475

STRUCTURAL CLAY PRODUCTS

	UNGLAZED BRICK (in thousands of standard brick)		UNGLAZED STRUCTURAL TILE (short tons)		VITRIFIED CLAY SEWER PIPE (short tons)	
	Mountain	Pacific	Mountain	Pacific	Mountain	Pacific
January	6,864	12,192	2,200	1,494	2,321	13,630
February	7,877	11,163	1,562	1,468	2,280	12,967
March	10,145	11,576	1,557	2,604	2,717	16,523
April	8,276	16,237	2,519	2,203	2,785	15,765
May	11,997	20,864	2,894	2,691	2,534	15,751
June	13,314	28,182	1,887	2,644	2,657	16,679

WHEAT FLOUR

(In thousands of sacks. From Bureau of the Census)

	Ore.-Wash.	Montana	Utah	Colorado	California	Total
January	1,539	269	313	439	375	2,935
February	1,388	236	269	366	353	2,612
March	1,269	277	329	426	372	....
April	971	264	259	363	261	2,118
May	1,159	278	281	307	313	2,338
June	1,210	268	305	346	415	2,544

Sugar

Insult was added to injury for the West's sole cane refiner, C & H, when a strike of refinery workers at the end of August put the company out of the running for the time being. As a substitute for strike-bound raw sugar in Hawaii, C & H had taken all the Philippine sugar and later began importing from the Caribbean. The supply of refined cane on hand was enough to take them through October. Meanwhile, some 500,000 tons of raw sugar, valued at $50,000,000 to $60,000,000, have backed up in Hawaii. C & H sales normally account for over half the distribution of all sugar in the West, so the slack will have to be taken up by the beet people. Cannery demands have been lighter this year, thus increasing available supply for other uses. California beet crop yield prospects continuing to improve.

Among the changes in distribution of sugar in 1947-48 as compared with 1940-41, the cane refineries increased their proportion of the total consumption of sugar in the three Pacific Coast states, while beet processors increased their share of the deliveries in Washington but showed a decrease in both Oregon and California. As there was no importation of Philippine refined sugar in 1947-48, the importers' prewar portion of the Pacific Coast market and Arizona, which averaged about 9 per cent, was absorbed by the other two classes.

Figures for Western states having significant changes are as follows:

	CANE SUGAR REFINERS		BEET SUGAR PROCESSORS	
	Average 1947-48	Per cent Increase or Decr. over 1940-41	Average 1947-48	Per cent Increase or Decr. over 1940-41
Arizona	77.82	23.02	22.17	—22.17
California	60.88	9.44	*	*
Nevada	76.54	—11.45	23.46	11.45
New Mexico	48.40	19.75	51.60	—19.75
Oregon	56.76	16.67	41.59	— 6.97
Washington	44.10	12.74	55.89	8.50
Wyoming	9.66	— 8.30	90.34	8.30

CONFECTIONERY AND COMPETITIVE CHOCOLATE PRODUCTS

(From Bureau of Census)
(In thousands of dollars)

Month	COLO. - IDAHO - UTAH Sales	Per Cent Change from same month of Preceding Year	— WASH. - OREGON — Sales	Per Cent Change of Preceding Year from same month	— CALIFORNIA — Sales	Per Cent Change of Preceding Year from same month
January	577	— 9	397	—18	2,333	+ 6
February	490	+ 3	296	+ 8	2,122	— 2
March	589	+ 1	412	+17	2,504	+ 5
April	499	+ 3	341	+ 8	1,934	—14
May	387	+ 6	227	— 3	1,663	— 5
June	381	+ 2	217	...	1,731	— 1

Chemicals

Estimated annual mineral needs of the California glass container industry are given by Richard L. Cheney, West Coast manager, Glass Container Manufacturers Institute, Inc., as follows:

	At 100% of rated capacity (tons)	At current rate of production (tons)
Glass sand	550,000	410,000
Soda ash	154,000	113,000
Limestone	110,000	82,000
Salt cake	8,000	6,000

Eleven Western states production comparisons in organic chemicals made by the Census Bureau include the following:

	1947	1948
Carabon dioxide, (liquid and gas) pounds	11,466,000	14,162,000
Oxygen, million cubic feet	1,315	1,486

Solid carbon dioxide, hydrogen, nitric acid and sulfuric acid (contact and chamber) showed losses.

ICC figures on rail tonnage of soap and washing and cleaning compounds show less volume, both originated and terminated, in the West for 1948, than in 1947. California stood in fourth place in the country in tonnage originated and second in terminations. The statistics are:

	—Originated—		—Terminated—	
	1947	1948	1947	1948
Total Mountain	4,309	3,373	57,143	50,119
Montana	...	85	7,141	6,611
Idaho	5	66	3,300	2,772
Wyoming	128	70	2,302	1,818
Colorado	629	396	21,722	19,022
New Mexico	55	54	5,466	4,452
Arizona	160	115	9,479	5,693
Utah	3,325	1,933	6,820	9,302
Nevada	7	656	913	449
Total Pacific	136,264	110,820	199,709	183,009
Washington	5,154	2,625	40,505	38,727
Oregon	4,709	1,845	26,228	22,263
California	126,401	106,350	132,976	122,019

ETHYL ALCOHOL

(From Bureau of Internal Revenue)
Production (in proof gallons)

DOMESTIC UNDENATURED ALCOHOL

1949	California	Colorado	Washington
January	559,736	.....	481,367
February	219,204	.....	401,952
March	378,555	.....	448,298
April	558,733	.....	321,203
May	379,931	.....	269,087
June	668,503	.....	244,170
July	451,006	.....	.....

DENATURED ALCOHOL

1949	Completely Denatured California	—Specially Denatured— California	Utah	Washington
January	42,898	323,971	.....	24,697
February	19,740	178,780	.....	8,203
March	20,905	267,450	.....	8,186
April	38,306	333,390	.....	16,329
May	15,430	267,394	.....	8,168
June	30,608	292,489	.....	16,301
July	4,566	171,858	.....	8,142

Canning and Packing

California cling peach pack apparently will be around 15,000,000 cases, about 250,000 cases below last year. Government purchase of 1,000,000 cases for school lunch program plus probably another 1,500,000 cases for armed forces and other government agencies. Freestone pack expected to be about the same as 1,707,906 cases last season. Inability to get pineapple, on account of longshoremen's strike in Hawaii, has cut down fruit cocktail pack considerably, which is partly a blessing in view of huge carryover from 1948 pack.

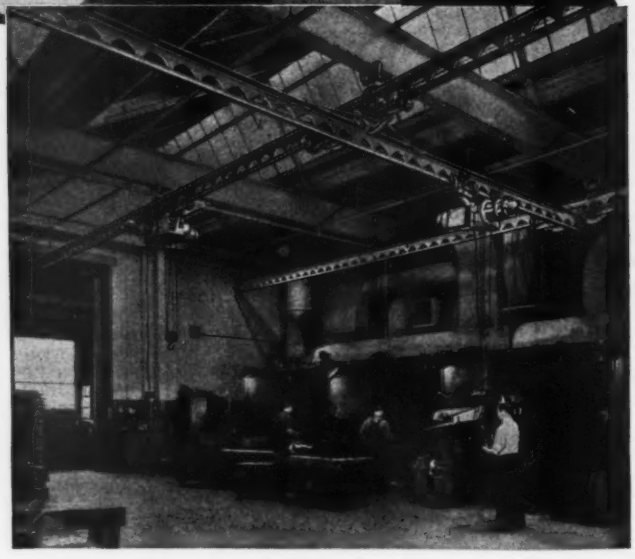
California tomato acreage for canners estimated at 74,000 acres, as against 87,700 actually harvested last year. Canners indicated in July they had under contract 65,780 acres, as against 79,828 finally under contract in 1948. New record set for average of green lima beans for canning and freezing, of 23,624 cases contracted, about 1500 acres above last year. Division of

(Continued on Page 29)

handle freshly painted parts the *EFFICIENT OVERHEAD way*

This rack carrier system speeds the painting of metal doors and filing cabinets. The items are conveyed to and from the spray booth in an even flow without log-jamming.

A three-runway crane simplifies handling of ironing machines and other laundry equipment in this paint room. The middle runway track extends to other parts of the building, enabling loads to be brought directly to the room by the hoist carrier seen at left.



PAINTING and handling parts or complete machines is greatly simplified and speeded by use of an inexpensive Cleveland Tramrail overhead system.

Items may be delivered from fabrication department, painted by spray or dip, and conveyed to assembly or shipping without leaving the tramrail system. Freshly painted pieces are easily moved the overhead way with little danger of being touched or damaged.

Various types of Cleveland Tramrail equipment are available to suit different conditions. Whether it be cranes, rack carrier systems or completely automatic installations, Cleveland Tramrail engineers can advise and serve you.

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CLEVELAND TRAMRAIL DIVISION
THE CLEVELAND CRANE & ENGINEERING CO.
8808 East 284th Street Wickliffe, Ohio

CLEVELAND TRAMRAIL
OVERHEAD MATERIALS HANDLING EQUIPMENT

(Continued from Page 27)

acreage indicated 15,214 for fordhooks, 8,410 for baby limas. Last year about 80 per cent of acreage went to the freezers.

Olive crop forecast at 45 per cent of full crop, as against 67 per cent last year, making yield around 40,000 tons. Last year olives did not size up properly for canning purposes, this year's showing better, with more of the olives going into ripe olive pack instead of having to use up small sizes in Spanish Green or olive oil. California pack of cherries in brine 120,928 barrels this year, big jump from previous seasons; 1948 was only 93,240 barrels.

Dried apricot pack may be slightly above last year's 12,500 tons. Freestone peach drying may be above last year, on account of lower canner takings. Raisin growers trying to pressure $8,000,000 to $10,000,000 out of Washington to assure that 1949 returns will equal $130 a ton.

Limit of 75,000 tons on sardines that may be used for oil and meal in coming season set by California Fish and Game Commission, 25,000 tons lower than 1948.

Except for a spotty exception or two, the canned salmon pack along the Alaska Coast and Puget Sound will be generally poor this year. Runs did not materialize in some areas and in others the season was cut short to build up the resource for future years by allowing a greater escapement for spawning.

Labor troubles have continued to dog the industry. Resident workers in Southeast Alaska won a 7-cent hourly increase in mid-August. But the situation on non-resident workers was still unsettled, with the principal issue being a demand by the operators to transfer workers to Southeast Alaska from other regions to complete their seasons.

Seattle's big Salmon Bay Fishing Terminal, home port and outfitting point for a big fleet of boats, is getting $350,000 expansion-improvement.

Apparel

Midsummer's sharp break in wool textiles prices has broken the deadlock between makers and users of fabrics. Result has been revival of buying, reopening of some New England mills, and a pickup in activity which is spreading also to cotton fabrics.

Some trade sources regard this turn in textiles as a major readjustment which will enable apparel industries to get back some of the business they have been losing because of high prices.

Cuts in fabric prices, however, are believed not drastic enough to permit further major reduction in retail clothing prices. Labor costs haven't declined, although employment in southern California apparel factories recently was at its lowest level in two years. Retail apparel sales are running about 8 per cent below last year's rate.

Truck Trailers

California leads all states in the union in truck trailer production, and Oregon ranks sixth, according to 1947 census of manufactures figures. While Ohio has half again as many employees as California, its output is less.

(Money figures in millions)

**Value of shipments less cost of materials, fuel, electricity and contract work.*

	Total U.S.	Calif.	Ohio	Oregon
Number of establishments	119	34	9	7
Employees (avg. for year)	12,020	1,306	1,833	318
Salaries and wages	$34.8	$ 4.2	$ 5.1	$1.0
Value added by manufacture*	$65.3	$10.8	$ 9.5	$1.6
Cost of materials, fuel, electricity and contract work	$85.6	$12.7	$12.5	$2.7
Value of products shipped	$150.9	$23.6	$22.1	$4.3

This Trouble-Free

PIPE WRENCH

Saves Time and Money

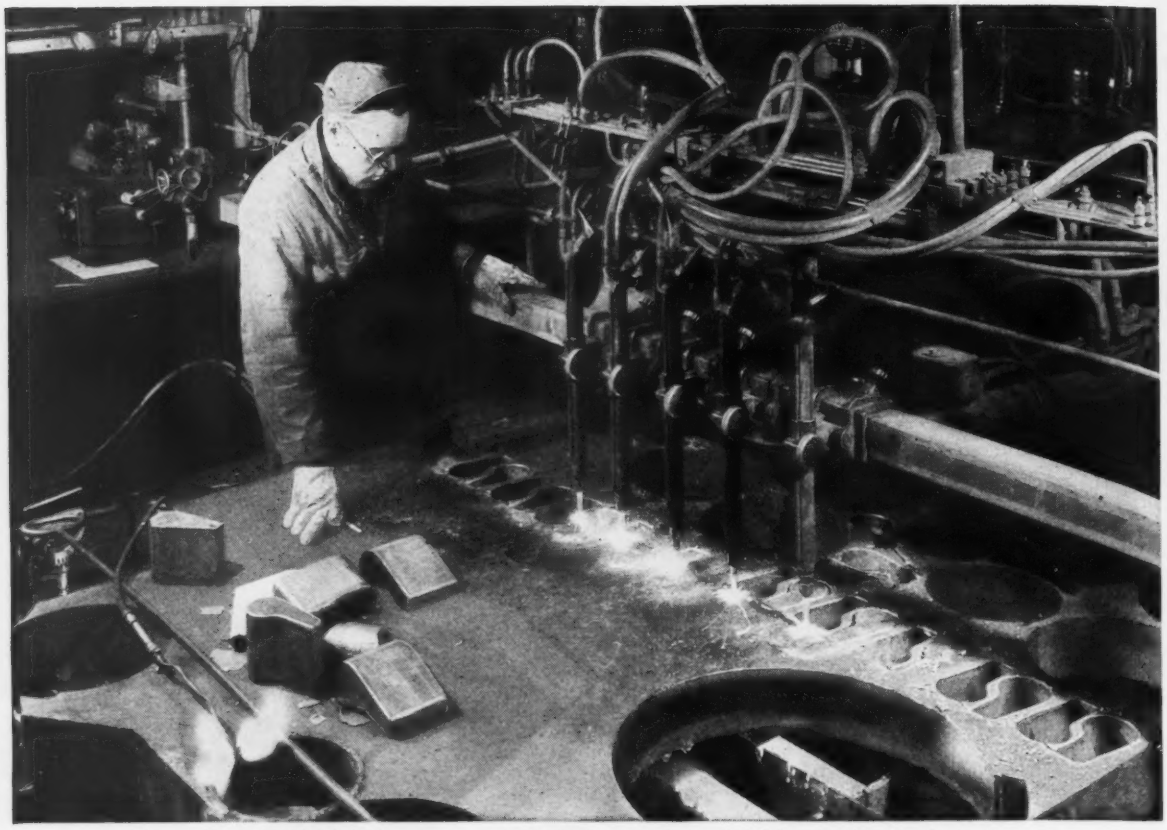
RIDGID's guarantee means no pipe wrench housing expense—ever

● No time out for pipe wrench housing repairs and expense with the guaranteed RIDGID. Sturdy construction and work-saver features make it on-the-job always, make jobs easier, too. Adjusting nut spins freely in all sizes, 6" to 60." Handy pipe scale on hookjaw. Instant action non-slip, non-lock jaws. Powerful comfort-grip I-beam handle with flared end that keeps your hand from slipping off. It's the world's most popular wrench for good reasons.... Buy RIDGID wrenches at your Supply House.

RIDGID

WORK-SAVER PIPE TOOLS

THE RIDGE TOOL CO. • ELYRIA, OHIO



The metal box, upper left behind operator, contains electronic tracing device which follows sketch and guides cutting torch.

New Electric Eye Machines Speed Ryerson Cutting Service

The multiple-torch gas cutting machine shown above is one of eleven recently installed in Ryerson plants from coast to coast. Equipped with an electronic eye tracing device, these remarkable new machines cut the most intricate shapes swiftly, accurately. Time spent in preparing wood and metal template making is eliminated. Instead the electric eye follows a simple sketch or blueprint within plus or minus fifteen-thousandths of an inch!

Many manufacturers are saving time and effecting substantial economies through the use of Ryerson flame-cutting. With electric eye machines rounding out a complete flame-cutting service, your Ryerson plant produces an endless variety of shapes from strong rolled steel. To mention only a few—circles, rings, wrenches, flanges, crankshafts, weldment parts, cams—many more. The result: clean, accurate edges whether mild steel, high carbon, alloy or stainless steel is used. And your Ryerson plant can produce hundreds of pieces to the same pattern with almost die-cut uniformity, from steel plate up to 15-in. thick.

The new Ryerson cutting machines illustrate how we are continually expanding our facilities to give you faster, more efficient steel service. The exact steel you need, cut or otherwise prepared to your particular specifications is delivered promptly when you draw on large, diversified Ryerson stocks.

PRINCIPAL PRODUCTS

BARS—Carbon & alloy, hot rolled & cold finished.
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TUBING—Seamless & welded mechanical & boiler tubes.
STAINLESS—Allegheny bars, tubing, plates, sheets, etc.
PLATES—Sheared & U. M., Inland 4-Way Floor Plate.
SHEETS—Hot & cold rolled, many types.
MACHINERY & TOOLS—METAL WORKING EQUIPMENT

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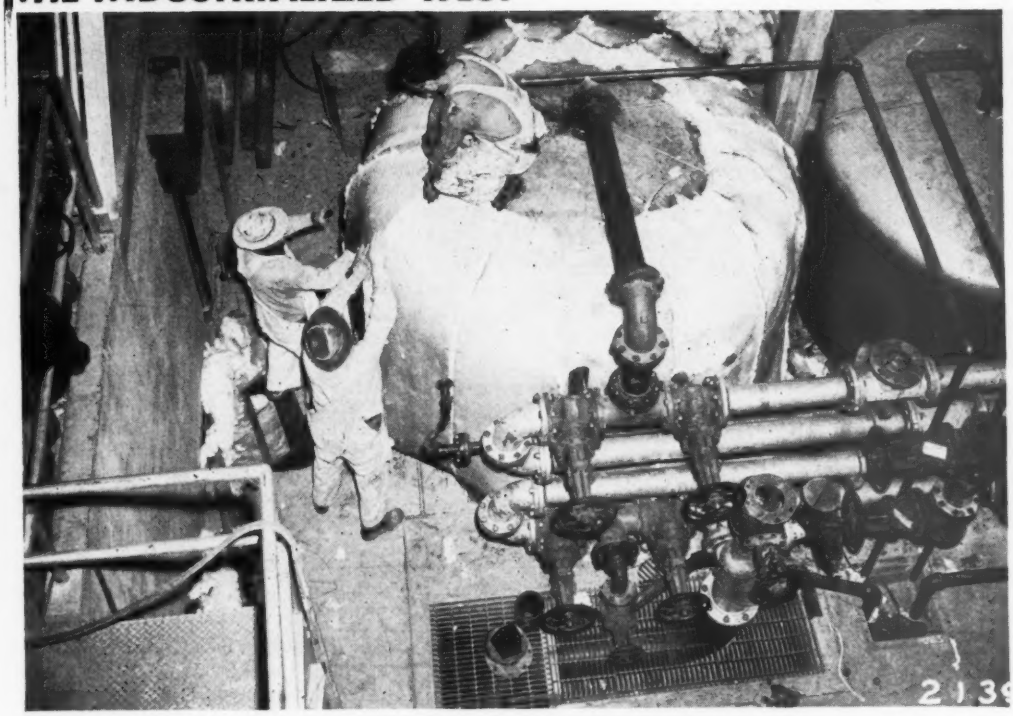
THE INDUSTRIALIZED WEST



A BIRD'S-EYE LOOK *at workmen busy insulating one of the filters on a water treating unit of the new Pacific Coast Owens-Corning Fiberglas Corporation plant at Santa Clara, California. The insulation material being applied here is Fiberglas Metal Mesh Blankets, produced by Owens-Corning at this plant.*

How to Work the Incentive in an Incentive Plan that Works

By A. HAWLEY
Works Manager
Plomb Tool Company
Los Angeles

This wage incentive plan for our direct operators was established ten years ago, and has been in full operation ever since. Prior to installing it, certain fundamental principles had to be established. They are:

1. The purpose of any incentive plan is to increase production efficiency, thereby reducing costs of production.

2. The plan must be an incentive plan. That is, it must be attractive to the employees, if it is to work.

3. The plan must be as simple as possible so that all may understand how it works.

4. A common basis of measurement must be developed which will apply to all work.

5. Methods of setting standards must be accurate and consistent as far as possible, and they must be guaranteed against revision so long as the method of operation remains the same.

Before any standards can be worked out, the procedure of operation must first be determined. This almost invariably is done by the general foreman of the department concerned, by collaborating with some member of the industrial engineering staff. When the procedure is established, then the operation is ready for time study.

Setting of standards is done by time study, taken by a qualified time study engineer. He records all the necessary motions and operations performed by an operator being timed on a given operation. This time study is taken with a stop watch calibrated in decimal parts of a minute.

For instance, six seconds is 1/10 of a minute (.100). Thirty seconds is 5/10 of a minute (expressed as .500). Reasoning behind this is that the basis of measurement has been established as

one minute of time, and is called one unit.

After the time study is taken, then the time study engineer evaluates it, taking into consideration the work pace of the operator, fatigue factors, etc. From this information he establishes the standard.

For instance, suppose the actual time of doing the operation is .500 of a minute (or unit) and by evaluation, 40% in allowances is added to it. Then the time study engineer arrives at a standard of .500 of a unit plus .200 of a unit, or .700 of a unit. This, then, becomes the standard and is established at .700 units.

This standard, having been established, is not changed and is guaranteed so long as the physical conditions of the operation remain the same. Any change in the physical conditions calls for a new time study and possibly a new standard.

By dividing the standard into 60 the operator then knows how many operations he has to do in an hour to meet his standard requirement. In the case of this example, 60 divided by .700 indicates that the operator must do 86 operations an hour to meet his standard. As his raw time was .500, it is obvious that it is possible to do 120 pieces per hour.

A standard represents the time required by an average operator to perform the operation at a reasonable rate of work. It represents what he is allowed for his base pay, which is guaranteed in return for 60 units produced per hour.

It is entirely possible for a skillful operator to produce more than 60 units per hour by utilizing to his advantage all, or part, of the allowances included in the standard.

For instance, in the example used before, by taking full advantage of the

A. L. HAWLEY

allowances it is entirely possible for the operator to produce 120 pieces per hour, although his standard is only 86 pieces, or 34 bonus pieces. For these 34 bonus pieces he is credited with 24 bonus units, which figure is arrived at by multiplying the number of bonus pieces by the standard of .700 for the operation.

It is obvious, therefore, that whatever bonus he earns is possible only through *greater effort*. Therefore, the bonus unit value has been established at 75% of the value of the base unit rate.

Base unit value is established by dividing the operator's hourly base rate by 60. For example, if the operator's base rate is $1.20 per hour, then the base unit value is $.02. The bonus unit value is ¾ of the base unit value, or $.015.

Again taking our example above, the operator receives $1.20 base pay plus bonus pay of 24 units times $.015, or 36c. Thus his take home pay would be $1.56 per hour for each hour he produces 120 pieces.

In our plan each day stands on its own. At no time is take home pay for one day affected by another day, except when the operator works overtime, in which case overtime is computed on the basis of overall earnings, including bonus.

To record what the operator does, he is issued daily an Operator's Production Record, upon which is written each operation he performs, together with the standard for the operation. When he has completed the work he records the number of pieces completed. At the end of the day the Operator's Production Records are collected and sent to our Cost Accounting Department for computation in order to determine what the op-

DEPARTMENTAL OPERATING REPORT

DEPT. NO._____ MONTH_____

DEPT. NAME_____ GEN. FOREMAN_____ WK. ENDING_____

CLASSIFICATION	THIS WEEK	MONTH TO DATE	MONTH PREVIOUS
Units Produced			
Deducted Units			
Net Units Produced			
Direct Labor			
Indirect Labor			
Repair Labor			
Allowed Time			
Overtime Premium			
Other Labor			
Total Labor Cost			
Labor Cost Per Unit Produced			
Factory Supplies			
Total Controllable Cost			
Total Labor & Supply Cost Per Unit Produced			
FACTORY			
Average Labor Cost Per Unit Produced			
Average Labor & Supply Cost Per Unit Produced			

CA19 2M-3-49-3.85.

erator made in pay for the day's work.

Of course, there are unforeseen developments such as tooling break down, equipment failure, etc. Such things not being within the control of the operator, he is given the time on the back of his Production Record, charged to a given account number, and this time is paid for at his base rate.

Sub-standard operators are not tolerated. They are subject to dismissal. This applies, also, to sub-quality operators. Operators must maintain the set standard of quality. In case of occasional bad work they lose their bonus, and in some cases rework their bad work on their own time. If poor quality continues, then the operator is subject to dismissal.

When it becomes necessary to hire new people, they are placed on a training period without bonus. If they prove competent at the end of this period, they are automatically placed on the incentive plan. If they fail to meet standards, they are let out.

Any operator has the right to request a re-time on any operation. This request, of course, goes to his immediate supervisor. He also has the right to go through the grievance procedure in the last analysis. However, through the execution of the incentive plan, through all the years it has been in operation, at no time has it been necessary to go through arbitration.

In each craft jurisdiction the union steward has the right to be an observer in the taking of any time study. This right is seldom used because a mutual understanding and confidence is enjoyed between the operators and our time study engineers. This understanding is a product of many years development. It never comes without a period of extreme difficulty in establishment and is built only on years of close and consistent cooperation.

Our Foremen's Incentive Plan is based on actual and comparative costs through the media of operating control. Each department foreman is made definitely responsible for all controllable costs originating in his department. All general foremen are brought together in a joint reward for teamwork and cooperation in factory efficiency.

In general only departments where it is possible to accurately measure output will be included in the Plan. Obviously, Inspection, Maintenance, Forge Die, Machine Tool and Die, and Steel Handling must be excluded on the premise that a reliable measure of efficiency is not possible, and in the case of Inspection, not desirable.

This Plan is simple and easily understandable. It requires very little work to administer and no data not now conveniently available. The basis is the actual overall controllable cost of a unit of production, and all results are relative to the month before. That is, last month becomes the bogey for this month.

Controllable costs within any given department are approximately:

67% Direct Labor Utilization.

33% Indirect Labor plus Factory Supplies.

Direct labor cost per unit of production is (and has been) measured by the current system of control used as a basis for bonus payment to the direct labor. To this is added the following:

Indirect Labor, Labor to repair shop errors, Labor used for general repairs within a department, Allowed time, Overtime premium, Factory supplies.

Overall cost of producing a unit this month is compared with the overall cost

FOREMEN'S INCENTIVE PLAN CALCULATION

MONTH OF JANUARY, 1949

		DEPARTMENTAL											FACTORY					
			Incentive			Housekeeping		Safety						Incentive				
No. Dept.		Dept. cost per unit	Maintain	Decrease	Total %	Grade	Penalty %	Frequency	%	Severity	%	Total % Foremen	Factory cost per unit	Maintain	Decrease	Total %	% of Salary Payable	Bonus Paid
1. Forge	Prev. Mo.	.0425											.0323					
	This Mo.	.0481											.0306					
	Diff.	.0056	....	....	....	B	*1.0*	....	....	....	....	*1.0*	.0017	5.0	3.4	8.4	7.4	$37.00
2. Machine	Prev. Mo.	.0292																
	This Mo.	.0267																
	Diff.	.0025	5.0	5.0	10.0	B	*1.0*	....	....	....	....	9.0	"	"	"	"	17.4	87.00
3. Grinding	Prev. Mo.	.0403																
	This Mo.	.0355																
	Diff.	.0048	5.0	9.6	14.6	A		....	....	....	....	14.6	"	"	"	"	23.0	97.75
4. Polish	Prev. Mo.	.0358																
	This Mo.	.0273																
	Diff.	.0085	5.0	17.0	22.0	B	*1.0*	....	....	....	....	21.0	"	"	"	"	29.4	132.30
5. Assembly	Prev. Mo.	.0208																
	This Mo.	.0192																
	Diff.	.0016	5.0	3.2	8.2	B	*1.0*	....	....	....	....	7.2	"	"	"	"	15.6	62.40
7. Plating.	Prev. Mo.	.0690																
	This Mo.	.0852																
	Diff.	.0162	....	....	....	B	*1.0*	....	....	....	....	*1.0*	"	"	"	"	7.4	29.60
8. Roughing	Prev. Mo.	.0327																
	This Mo.	.0252																
	Diff.	.0075	5.0	15.0	20.0	A		....	....	....	....	20.0	"	"	"	"	28.4	120.70
9. Hot Form	Prev. Mo.	.0458																
	This Mo.	.0390																
	Diff.	.0068	5.0	13.6	18.6	C	*2.0*	....	....	....	....	16.6	"	"	"	"	25.0	106.25
10. Automatic	Prev. Mo.	.0296																
	This Mo.	.0233																
	Diff.	.0063	5.0	12.6	17.6	A		....	....	....	....	17.6	"	"	"	"	26.0	117.00
21-22-24 Heat Treat	Prev. Mo.	.0094																
	This Mo.	.0237																
	Diff.	.0143	....	....	....	B	*1.0*	....	....	....	....	*1.0*	"	"	"	"	7.4	31.45
25. Dip Room	Prev. Mo.	.0136																
	This Mo.	.0396																
	Diff.	.0260	....	....	....	A		....	....	....	....	0	"	"	"	"	8.4	29.40
								Factory Superintendent									17.8	141.69

of producing the same unit last month —the basis of the Plan in its simplest form.

Computation of the bonus and the elements which have been part of the Plan are outlined below:

(A) MAINTAINING.

For maintaining last month's costs within 20 points in his department, the foreman receives a flat 5% in the bonus column.

Note—In designating the cost of a production unit, the cost is stated in decimal parts of a dollar carried to the fourth place. (Example: .0310.) One point is one ten-thousandth of a dollar, or one in the fourth place.

The foreman can't allow his costs to increase but very slightly without losing his bonus for "maintaining."

(B) SUSPENSION.

To prevent a foreman from receiving consecutive bonus payments (maintaining within 20 points) while costs rise each month successively within his department, a 60-day limit has been placed upon him to the effect that if the third month does not show a reverse in the cost trend downward, that foreman is automatically suspended from the Plan, both departmental and general factory, and is eligible for reinstatement only when he reverses this trend in his own department.

(C) REDUCING.

When a foreman reduces his costs, he receives a .2% in the bonus column for each point he decreases the cost of the unit. In other words, the foreman must decrease his cost by 5 points to receive 1% in his bonus column.

(D) HOUSEKEEPING.

A penalty factor has been added to the Plan by penalizing any foreman who allows poor housekeeping to exist in his department. The factory is inspected once a month and at an unannounced time by each of the three members of the housekeeping committee (chief industrial engineer, assistant works manager and factory superintendent). Three grades are established: A, B, and C. An "A" grade results in no penalty. A "B" grade penalizes the foreman 1% in his bonus column. A "C" grade penalizes a foreman 2% in his bonus column.

(E) SAFETY.

A plus or minus factor for safety based upon frequency and severity figures as compiled each month by the safety engineer is part of the plan. If either frequency or severity is reduced this month over last in a foreman's department, he receives 1% for each in his bonus column. If either is increased this month over last, the foreman is penalized 1% for each in his bonus column. Thus a foreman can receive a maximum of 2% added to his bonus and may be penalized a maximum of 2% in his bonus column.

(F) FACTORY AVERAGE.

So that every general foreman may be rewarded partly upon his own efforts within his department and partly upon how the cost of the entire plant is controlled, a bonus on Factory Average has been made part of the Plan.

(1) For maintaining within 10 points, a flat 5% in each general foreman's bonus column.

(2) For decreasing—.2% for each point of reduction in each general foreman's general bonus column.

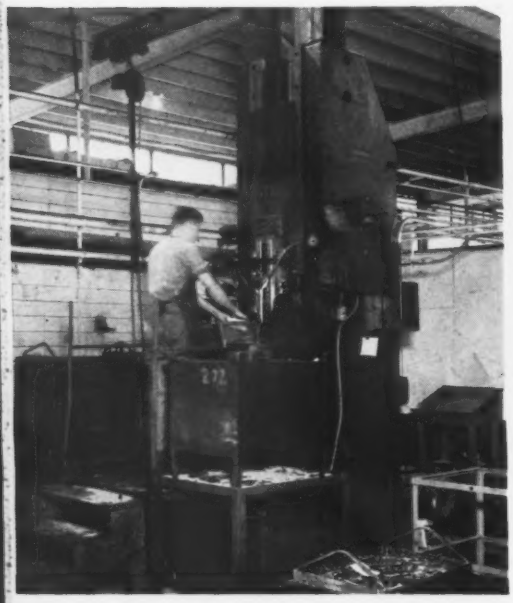
(G) TOTAL BONUS.

After all the bonus calculations have been made, the total percent of bonus is determined for each month and for each foreman and general foreman. The percent bonus is then converted to dollars by taking that percent of the individual foreman's salary for the month. Example: If a foreman rates 12% bonus and his salary is $400, bonus check for that month would be 12% of $400, or $48.

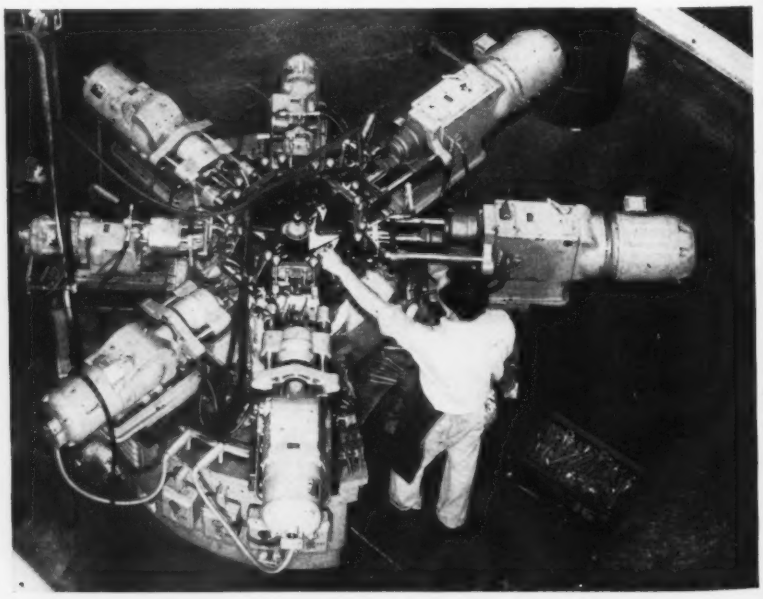
It is expected that this Plan will result in substantial cost savings to the company. It places all controllable expenses under incentive control and completely integrates the theory of incentives throughout all levels of employees in the manufacturing division.

Cost savings can approach a value of $100,000 the first year of foreman incentive operation, and it is expected that bonus payments to foremen and general foremen will vary from nothing to as much as 25%, depending upon the skill that each foreman and general foreman uses in the management of his own department, and the "esprit de corps" that the general foremen can achieve working one with the other for their mutual benefit in the general factory average.

• This broach is one of the most necessary machine tools in wrench business.

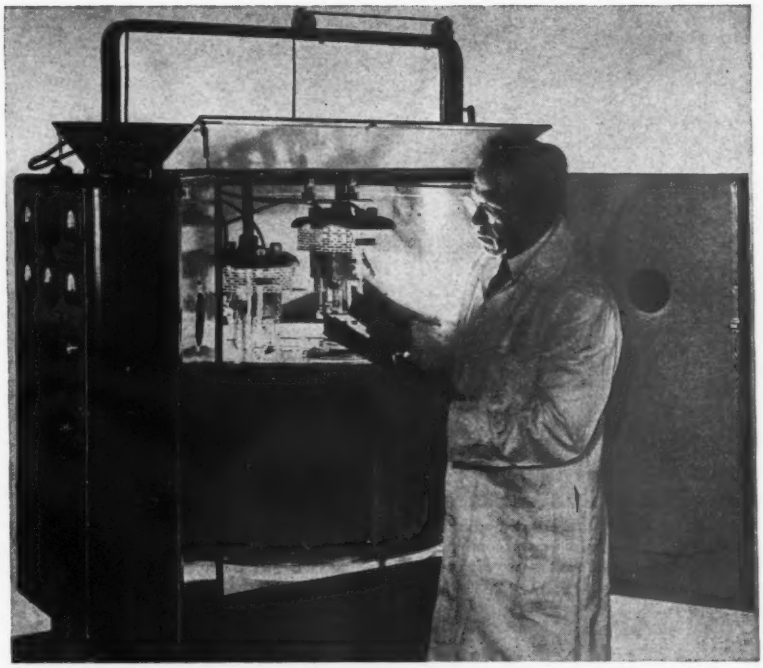


• Another example of the highly specialized equipment indicated by production requirements in today's economy. Without such machines, manufacturing costs soar.



Independent scientific laboratories have served and are serving Western industries in many ways. Some of the more common ones include:

1. Research and development of new products and processes and improvement of existing products;
2. Quality control of production by establishment and maintenance of control laboratory at client's plant or in own laboratory;
3. Special "trouble-shooting" problems;
4. Engineering inspection;
5. Chemical and physical testing;
6. Chemical engineering involving pilot-plant and full-scale engineering research;
7. Consultation on technical matters;
8. Methods for by-product utilization;
9. Sanitary engineering involving waters, sewage and industrial wastes;
10. Technical surveys for investors;
11. Technical services for attorneys and legal testimony;
12. Liability insurance investigations;
13. Study of the toxicological aspects of foods and drugs.



• This Atlas Twin-Arc Weather-Ometer creates synthetic weather in Truesdail Lab. Controlled tests can be made of many materials having critical deterioration factors.

When Research Comes in the Door Recession Jumps Out the Window

By ROGER W. TRUESDAIL, Ph.D.
Chairman, Western Division,
American Council of Commercial Laboratories

AT A TIME when many Western businessmen are singing the recession blues, the more enterprising ones are planning plant expansions and are using research to retard the recession. We think it timely to remark that when research unlocks the door, the forces of recession tend to vanish through the window.

Thousands of new and better products are needed by the West's growing population and the facilities for their development and production are at hand.

The independent scientific laboratories in the eleven Western states are an integral part of our regional economy and are vigorous exponents of the American system and of the principles of private enterprise of the industrial West and make specific contributions to the communities in which they are located. They charge fair fees and hope to have a fair profit after they pay expenses and taxes.

It is estimated that there are approximately 100 such laboratories in this Western area. Some consist of only several staff members, while the larger ones may be staffed with about 50 scientists, the large majority of whom are college and university trained chemists, bacteriologists, food technologists, engineers and physicists. They are experienced in meeting the problems peculiar to Western industries and are familiar with a wide variety of products of manufacture, from raw to finished products. This group of independent commercial laboratories should not be confused with the so-called "captive" industrial laboratories owned and operated by individual companies.

The independent laboratory is the logical place for small and medium sized businesses of the West to go. Peculiar to the West, most businesses fit this category. They were conceived, born, and are growing up here. In many instances, commercial laboratories have "held their hand" during their growth period.

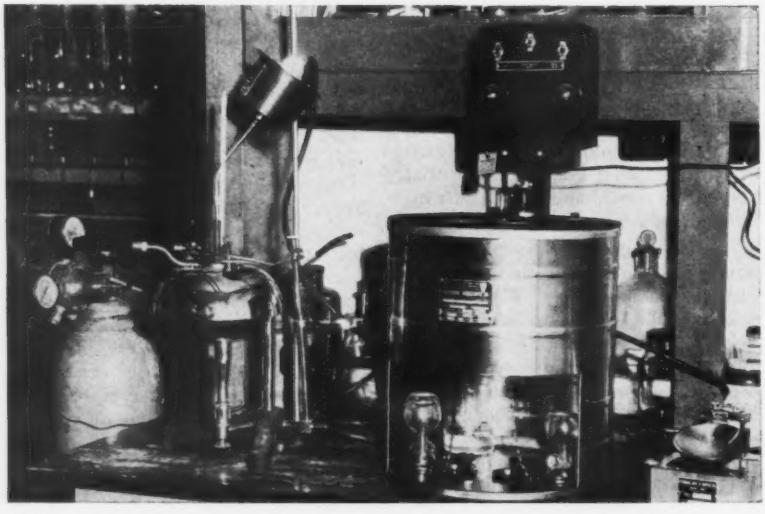
This professional group of laboratories has the plant; it has the equipment; it has the personnel; and it has the scientific "know-how." If the research problem is temporary in nature, the sponsor will find this type of organization to be the most economical place to conduct research. When his research problem is completed, his expense ceases.

The sponsor has to make no investment in personnel or equipment. He can terminate the work whenever he desires to. He can start new problems on short notice, and he can have his work done by people who are trained in doing research and making investigations with the objective of a practical application of the findings. Dreamy and starry-eyed theoretical scientists have their place in fundamental research—but it isn't behind the curtain of the commercial laboratory.

This latter viewpoint and experience is most important. We have seen some processes and products developed in the pursuit of pure scientific research, which at first appeared to be the answer to a sponsor's prayer. However, they could not be utilized or marketed because they were uneconomical. In the case of the

• Abbot A. Hanks, Inc., San Francisco, use this new one and one-half meter Grating Type Spectograph to analyze minerals, ores, metals, metallics in organic materials and alkalies in cements and refractories. Includes a film Comparator Densitometer.

Laucks Laboratories, Seattle, read and interpret spectrograms on this Projection-Comparator-Densitometer shown above. Useful in analyses of ores, minerals, steel and many inorganic materials, qualitative and quantitative, depending on project.



• Arizona Testing Laboratories, Phoenix, employs the equipment shown at left to test road oils, asphalts and concretes. Cause of failures in road pavements and airport landing strips have been determined in this laboratory, and proper recommendations for future construction procedures have been made. In some cases of liquid asphalt paving, cause of the trouble permitted tearing up of the mix, drying out, and relaying.

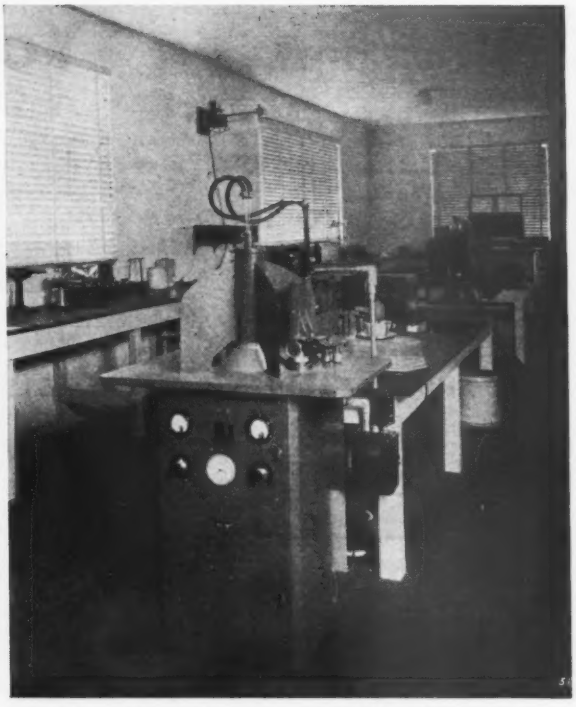
process, it was theoretically sound and demonstrable in the laboratory, but in pilot plant or commercial scale production, certain "bugs" showed up, such as low yields or uneconomical operating costs. While with products, the ingredients selected were too costly to produce a finished item with a satisfactory margin of profit to the manufacturer, wholesaler and retailer. After all, the development of a superior product is of little commercial value to the client if it cannot be produced and marketed at a price the consumer is able and willing to pay.

It might be well for Western industries to reflect upon the words of one of their own industrial sons, Paul G. Hoffman, when he said several years ago, "Small businesses should engage the services of properly qualified laboratories to assist them in research. Today 50 per cent of all commodities which are manufactured and sold did not exist in their present form 25 years ago and I predict that in 10 years, 25 per cent of all products manufactured and sold will be those not even existing today."

Effective scientific tools are available to Western industries. Some of these used by members of the Western Division of the nation-wide professional group of independent scientific laboratories known as the American Council of Commercial Laboratories are pictorialized in this article.

These and other laboratories are either serving Western industries now or are available to them in their rout of the recession.

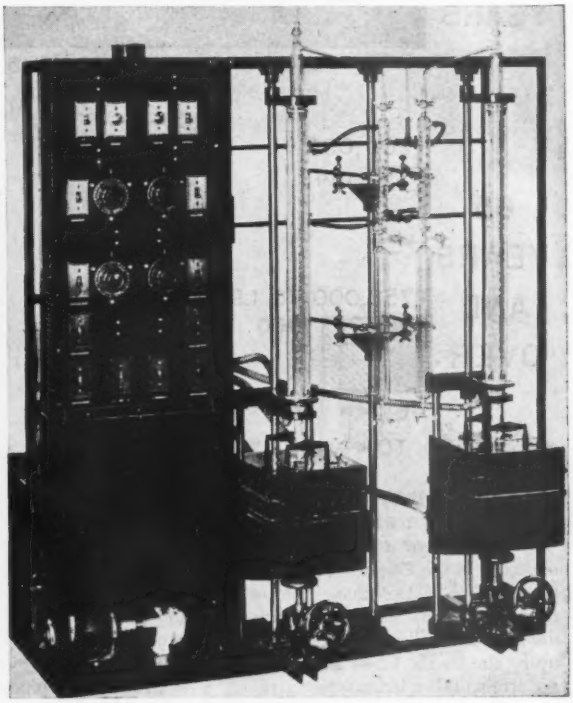
• Charlton Laboratories, Portland, Oregon, use this research metallograph in the study of metal structure. This instrument can magnify metal structure 2000 times and photograph it, enabling scientists to determine conditions and reveal failures.



• Twining Laboratories, Fresno, use this X-Ray diffraction equipment when a knowledge of molecular structure is required. In recent legal case they determined whether silica in a limestone deposit was present as quartz or as a silicate.

• Smith-Emery Co., Los Angeles laboratory, can exert up to 600,000 pounds pressure per square inch with this Southwark Hydraulic Compression testing machine. Large brick piers have been tested, breaking from 400,000-500,000 lbs. each.

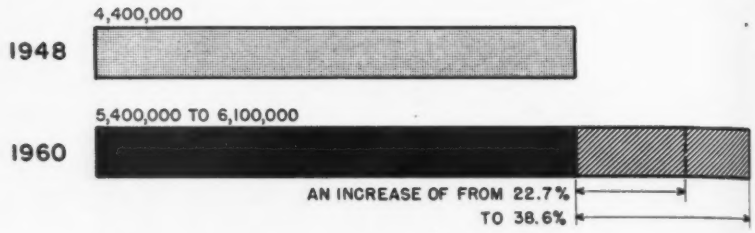
• California Testing Laboratories, Inc., Los Angeles, find frequent use for this Braun Badger-type double assay distillation unit in evaluating crude petroleum and other fractional distillation problems. Determines merits of oil in new oil field.



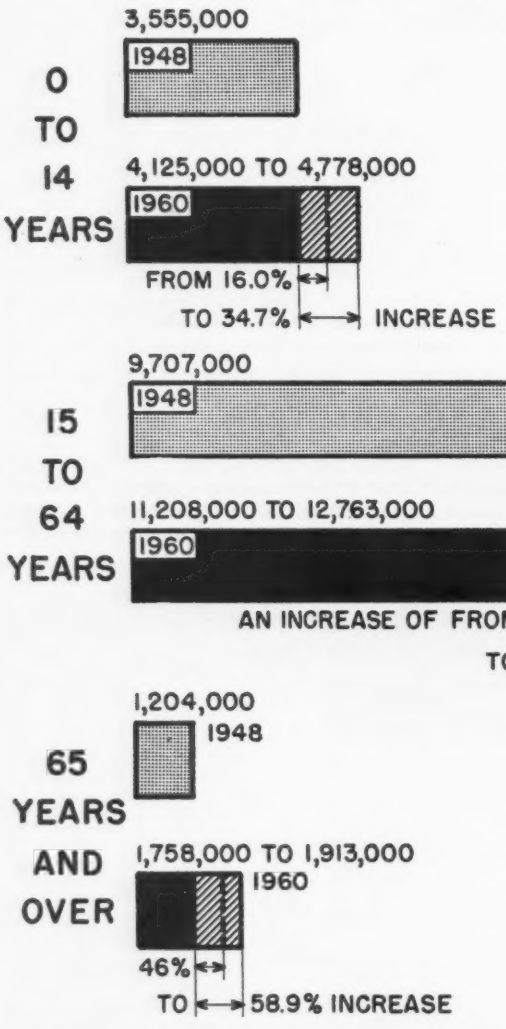
MARCH OF THE WEST

Your Added Market

FROM NOW TO 1960
NUMBER OF HOUSEHOLDS WILL MULTIPLY LIKE THIS:



AND AGE GROUPS WILL INCREASE LIKE THIS:



THEY WILL NEED:

0-14 YEARS OLD
- Baby foods
- Baby carriages
- School clothes
- Bicycles
- Playground, recreation and hiking equipment

15-64 YEARS OLD
- Homes
- Household furnishings
- Automobiles
- Apparel

65 YEARS OLD & OVER
- Warm clothes
- Portable heaters
- Books
- Hobby materials

ONE-FOURTH to one-third of the total nation gain in population from now to 1960 can be expected in the Pacific Coast area. This is a solidly based estimate in an interim report by V. B. Stanbery, chairman of the Economics Technical Committee set up by the Pacific Coast Board of Intergovernmental relations to carry on a basic economic survey of the Pacific Coast area.

This reasonable assurance that the Pacific Coast population will continue to increase more rapidly than the national population to 1960 has important implications for both government and private business, the report points out.

THIS MEANS:

1. Continued increase of consumer demands and purchasing power for all kinds of goods and services.
2. An ever-increasing share of the nation's production and consumption in the Pacific Area.
3. Greater loads on public facilities and public services, and larger revenues to pay for them.
4. Over the long pull, the economy of the Pacific Coast Area as a whole is bound to expand, and faster than in probably any other large national region.

On The Pacific Coast

The Pacific Coast market for goods and services for which the family is the buying unit grew from 3,037,000 households in 1940 to approximately 4,400,000 in 1948. A further gain to between 5,400,000 and 6,100,000 households is estimated for 1960. The upper estimate is twice the number in 1940.

From one-fourth to one-third of all new housing constructed in the nation to 1960 will probably be built on the Pacific Coast.

The steadily increasing concentration of Pacific residents in urban areas foreshadows an even greater expansion of West Coast markets than is indicated by the population figures alone. City families as a whole usually have higher per capita incomes and demand a greater variety of goods and services than families living on farms or in rural areas.

See the Whole Picture

Total population figures and overall rates of increase do not show the whole future picture. When these statistics are analyzed on a basis of the size of the different age groups: (1) 14 years of age and under; (2) 15 to 64 years; (3) 65 years and over, some slightly significant facts come to light.

To begin with, the unexpected gain of more than 1,750,000 children under age 15 (81 per cent increase) in the Pacific Coast area since 1940 has put a new and powerful prop under the West Coast economy which will become even stronger. The state population figures indicate a further increase of from 570,000 to 1,223,000 in the age group 0-14 years in the area by 1960. These estimates assume an annual net in-migration (all ages) equivalent to 1 to 2 per cent of the area's population in 1948.

Growth Unbounded

Because of their low birth rates, the Pacific Coast states heretofore had to depend chiefly on migration to expand their consumption and local markets. Now for at least one and probably two more generations, these are assured of growing markets *even without* in-migration.

Before the war the Pacific area had the smallest proportion of children under age 15 of any large area of the nation. For a long time to come the percentage of children in the areas's population will be markedly higher than in 1940. The peak in the 0-4 year age group reached in 1949 or 1950 may decline slightly, but the larger populations of these states assure a rising number of children in the 0-14 year bracket as a whole.

In each Pacific Coast state, the age group 0-9 years is much larger than any other 10 year age group *is now or ever has been*. For the area as a whole, children under age 10 are now more than *twice* the number in 1940. In California, and probably in Oregon and Washington also, births during 1948 and the first half of 1949 were holding up even better than estimated in the state population reports.

This article presents some of the advance findings of the broad economic survey of the Pacific Coast Area being sponsored by the Pacific Coast Board of Intergovernmental Relations. This board is a non-political, voluntary association of Governors of the three Pacific Coast states, representatives of the cities and counties, and key federal officials. The purpose of the board is to serve as a vehicle for discussion and research dealing with problems of government of all levels, including the impact of economic forces on governmental decisions and vice versa.

Conclusions given here are derived from a series of eight basic studies of population, employment and income trends in the states of California, Oregon, and Washington, made by faculty members of the Universities of Oregon and Washington and the research staffs of state agencies and the U. S. Department of Commerce in California.

The board's program is under the general direction of J. W. Rupley, Pacific Coast representative of the Bureau of the Budget, and chairman of the board's Agenda Committee. The economic survey is being guided by an Economics Technical Committee of which V. B. Stanbery of the San Francisco office of the U. S. Department of Commerce is chairman.

Copies of the eight state reports may be obtained from the board's office, Room 121, Federal Building, Civic Center, San Francisco 2, Calif.

Right now most of them are infants who use and consume only the goods and services needed by the very young, such as baby foods, baby carriages, infant's clothes and toys. Thus far, they have comparatively small effects on government, business and industry.

As they grow older they will expand Pacific Coast markets for things such as school clothes, school books, bicycles, playground recreation, and hiking equipment. And then on into the high school and college ages with ever growing demands.

By 1960 this bulged out cohort will be from 10 to 20 years old; by 1970 it will be in the 20-30 year bracket, and so on up the ladder to old age. Thus, it automatically assures larger markets than ever before in the Pacific area for the goods and services which human beings require at each stage of life.

When they become of the marriageable age, these young people will form new families and enlarge West Coast markets for the commodities and services for which the family, rather than the individual, is the buying unit, such as: homes, automobiles, and household appliances.

This marching column will create another wave of births during the 1960's, and a third wave will probably rise again in lesser degree during the 1980's.

Continued In-Migration

These youngsters are not likely to move away from the West Coast in any substantial numbers. Census reports show that the Pacific area has a smaller proportion of its native born living in other states than any other large region. And the reasonable certainty of continued in-migration will further expand consumer buying power and markets in the Pacific Coast states.

Each year the ranks of this on-coming army will be swelled by more and more youngsters of their own ages from other states. Even with greatly reduced in-migration, newcomers are almost certain to more than offset deaths in this youthful cohort. As it climbs up the 18-30 year rungs of the age ladder, it will be bulged out further because migrants to the West Coast are largely concentrated in this age bracket.

One of the earliest effects of the increase in Pacific Coast children is the urgent need for more school rooms and school teachers. Already the oncoming wave of youngsters has begun to pour into the primary grades, and will further flood the elementary schools during the 1950's. This of course will not be uniform in all school districts.

School Enrollments Up

For California, it is estimated that total elementary school enrollment will reach a peak of 1,650,000 to 2,000,000 about 1958 or 1959. Total public school enrollment, including high school pupils, will not reach its peak until the middle 1960's.

(Continued on next page)

PACIFIC COAST MARKET

(Continued from page 39)

Thereafter the state's population of school age would probably shrink unless augmented by future migration; however, the shrinkage will not be noticeable until the 1960's and will probably be so slight as to leave relatively few vacant school rooms, except in particular localities which have unusually low fertility rates. And even a relatively small migration could raise the school age population *above the high level* of the 1950's.

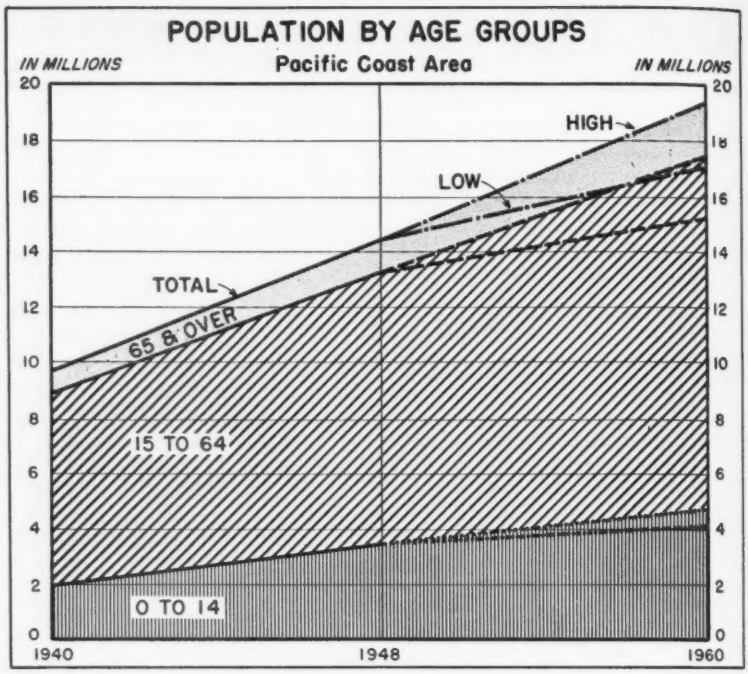
Enrollments in colleges and universities on the Coast will rise sharply in the 1960's. Even without future immigration, total enrollments in the 1960's and early 1970's will overtop those of 1946-49 when thousands of ex-GI's were taking college courses. Continued immigration will undoubtedly increase college enrollments beyond those computable from the present group of children.

The increase from 1940 to 1948 of approximately 2,750,000, or 39 per cent, in the active working age group, 15-64 years, was the primary stimulus for our postwar economic expansion, causing most of the expansion of local markets and providing most of the increased labor force. Thus, in many fields of economic development, the Area's growth from 1940 to 1948 should be measured against the 39 per cent increase in this group, rather than against the 49 per cent increase in total population.

A further gain of 1,500,000 to 3,056,000 individuals (16 to 31 per cent) is estimated for this age group to 1960, about equally divided between men and women. These increases will add between 800,000 and 1,700,000 to the Area's labor force in the 15-64 year age group *alone* (600,000 to 1,200,000 men; 200,000 to 500,000 women).

Assuming a conservative increase of only 1 per cent a year in average man-hour efficiency, and assuming no reduction in average hours of work, these additional workers will make possible a potential production of 30 to 47 per cent more goods and services in 1960 than were produced in the Pacific Area in the peak year of 1948.

The 15-64 age group is the one in which nearly all the future families and private households will be formed. While it is impossible to predict exactly the rate of future family formation, it seems reasonably certain that the number of private households in the Pacific Coast Area will increase as fast as, and possibly even faster than, the number of people.



For many decades the Pacific Coast states have enjoyed the advantage of having more people of active working age than the nation as a whole—but most of this advantage was suddenly lost during the 1940's. It will not be regained by 1960, even with the most favorable patterns of migration and birth rates that seem likely to occur. The under age 15 and the 65-year and older groups are each estimated to increase faster to 1960 than the age group 15-64.

In 1940, the Pacific Area had 395 children and oldsters per thousand population ages 15-64. At that time the nation had 515 per thousand. In 1948 the Area had about 490 per thousand, and in 1960 it will have approximately 525 per thousand. This will probably equal or exceed the national proportion in 1960.

The statistical effect of the increase in children in lowering per capita incomes in the Pacific Coast states has already been pointed out. With more youngsters to feed, clothe, and house, and more oldsters to be supported by public assistance, the average family purse will have relatively fewer dollars left for other expenditures than if the Area's pre-war population pattern had been maintained.

But although the economic load on the active working age group will be relatively greater than in the past, the additional pressure should be more than compensated by increases in overall man-hour efficiency resulting from technological progress. With continued high levels of production and employment, the gradual rise of real incomes per capita and per family should more than offset the larger burden on the active working age group.

The unprecedented increase of births in the Pacific Area has temporarily overshadowed the rise of 52 per cent from 1940 to 1948 in the age bracket of 65 years and older. From now on this group will increase more rapidly than any other age group in our area. It is estimated that there will be an increase of 46 to 59 per cent in these elderly folks from 1948 to 1960, due primarily to the inevitable aging of earlier migrations to the Pacific Coast.

This gain in the older age group means rapid expansion of markets for warm clothes, portable heaters, physicians' and mortuary services, books, hobby materials, and other commodities and services especially required by the elderly. It also inevitably means further increase in public welfare programs and expenditures.

An economic problem of increasing importance will be aiding older workers who have insufficient income for their support in withdrawing from competition for the more arduous types of jobs, and in shifting into occupations better suited to their physical strength. This means more training programs especially adapted to their needs, and intensified efforts toward aiding them to become self-employed.

Shipping Problems Shrink with Standardized Crates

A SHORT time ago several of the nation's leading manufacturers of pole iron hardware—bolts, screws, and fittings for power and telephone lines—looked around their industry and discovered they were using over 165 different shipping containers for similar products.

Nailed wooden boxes, burlap bags, cardboard containers and wirebound wooden boxes were just a few of the containers used. There were hundreds of different sizes and shapes used for shipping almost identical products.

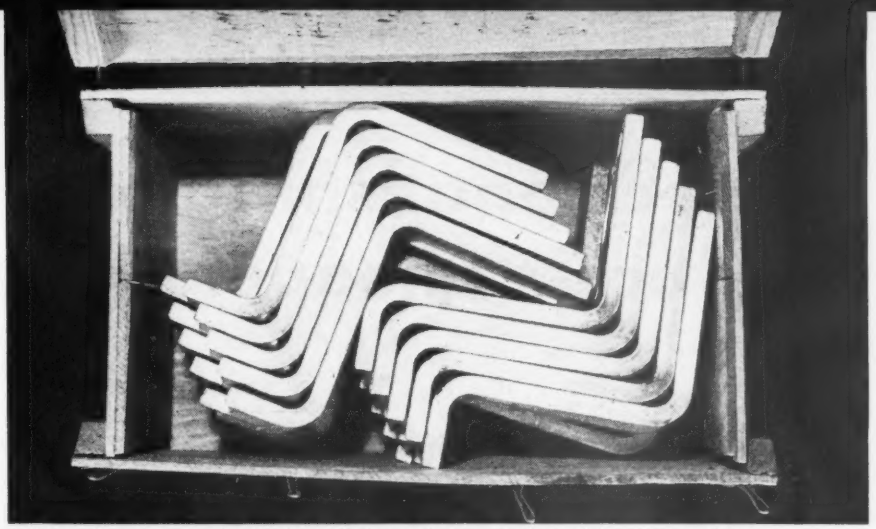
Then the industry conducted a survey among members to determine which type of container would best serve all needs.

Hubbard & Company of Emeryville, California, and Kortick Manufacturing Company of San Francisco, pointed out that they had already tested and were using a wirebound container developed and supplied by the California Barrel Company, Ltd., of San Francisco. The Joslyn Pacific Company of Los Angeles had also found wirebounds suitable, and had used them for years.

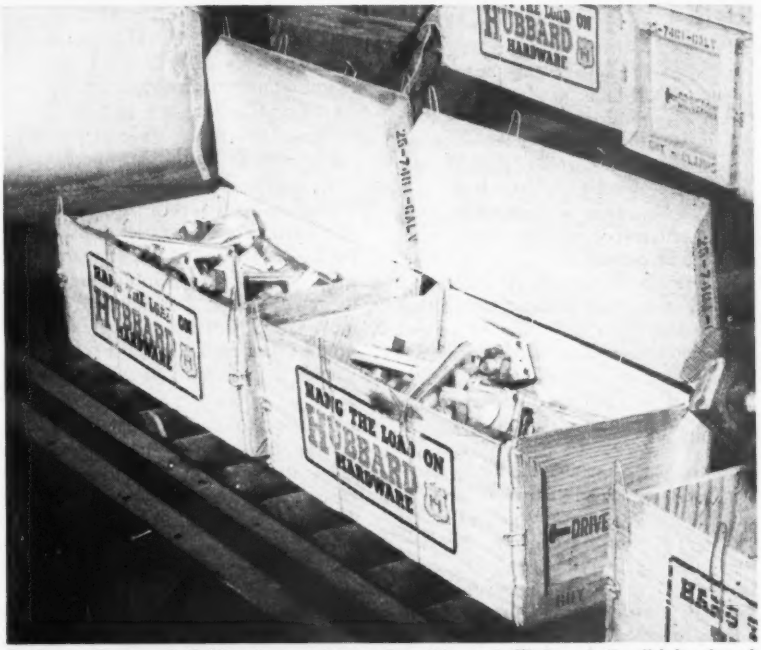
On the basis of these and other recommendations, the industry worked with several testing laboratories to determine the applicability of wirebounds to the industry's needs. After months of investigation and testing all types of containers, the wirebound box was chosen. Industry members were invited to standardize as soon as present supplies of old containers were exhausted.

New Cabco containers weigh only four pounds on the average, against eight pounds for a nailed crate formerly used. This reduction in gross weight with the more efficient container represents a considerable saving to both producer and customer on ever-increasing freight charges.

Fifteen modern Cabco wirebounds do a packaging job once requiring 28 different nailed crates. Packing time has been decreased and users are finding the new wirebounds less susceptible to breakage. Hence, pole line hardware is delivered better and without loss from broken sides or tops, on pulled-out nails. Wirebounds have been found easier to handle and warehouse than any other container previously used.



• **Above: Heavy galvanized units bulked loosely in a featherweight wirebound box. Even when load shifts inside the container, wirebound construction holds it securely.**



• **Above: Boxes of Hubbard guy clamps for shipment. Zip! and the lid is closed, box on its way. Sturdy wire reinforcement guarantees it will reach destination intact.**

• **Below: Here is 75 pounds of Kortick high-line bolts packed in a four-pound box. This is a very convenient size and weight for handling by line crews on the job.**

Electropolishing of Metal Offers Process Cheaper Than Burnishing

By WILLARD G. AXTELL
Chief Engineer
Samsonite Luggage Division
Shwayder Bros., Inc.
Denver, Colorado

ELECTROPOLISHING is a process for smoothing and brightening a metal surface of an article which is made the anode in an electrolytic cell.

It is the reverse of the usual electroplating technique, since instead of metal being plated onto the surface, metal is removed. By proper choice of the solution composing the bath, and other conditions, the metal may be removed evenly, so that a surface which is originally rough becomes smooth and shiny.

Electropolishing has valuable commercial applications, especially in the case of small irregular articles which are hard to buff or burnish, since it produces a clean surface, free from particles of abrasives or burnishing compound, and it is often cheaper than hand or machine polishing.

A French chemist P. A. Jacquet, a pioneer in electropolishing, noted that during the electropolishing of copper in a phosphoric acid bath, the anode surface became coated with a highly viscous film, and suggested that this film was responsible for the polishing effect. That is, where projections extend from the metal surface, the film is thinner than average, so that the metal salts can be diffused away faster and metal dissolves faster, whereas in the hollows, the film is thicker and the metal dissolves more slowly. This leads to a gradual leveling of the surface as the anode dissolution proceeds.

This coating was made the subject of a study by Dr. H. F. Walton at the University of Colorado, and his work confirms this theory.

Early in our work with electropolishing baths it was established that certain organic additions to phosphoric acid and water aided in the formation of the anodic film. Several baths were developed which gave us good results, when used under certain conditions, in the polishing of small brass articles. The bath presently in use consists chiefly of: orthophosphoric acid, glycerol, ethylene glycol, lactic acid.

To this bath there may be added other agents in minor proportions, to increase the brightness of the surface produced, and in some cases also to increase the throwing power or ability to polish around sharply curved surfaces or surfaces most remote from the cathode.

These addition agents are effective to increase the brightness in amounts up to a relatively low concentration, the brightness decreasing with higher concentrations. Addition agents include mannitol, some of the amines and amino acids and their salts. Glutamic acid and monosodium glutamate are perhaps preferred addition agents, in view of the increased brightness produced when a minor amount is added to the bath.

In order to utilize the film-forming characteristics of this bath most economically, some control of the film thickness is desirable. Probably the simplest way of accomplishing this is to agitate the bath; or better still, to move the articles being polished through the bath so that a steady slip stream is caused to flow past the articles.

A flow that is too rapid tends to wash off the film and hinders or prevents polishing, while a flow too slow increases the time necessary to produce the desired brightness. Very small articles (less than ½" major diameter) can often be polished without resorting to any movement in the solution, as the convection currents set up both by the heat liberated at the article surfaces and by gas evolution are usually sufficient to maintain an efficient film thickness.

WILLARD G. AXTELL

A very simple and effective device for evaluating the reflecting power of polished articles was devised by Dr. Walton. It provides a test of sharpness of definition, a test of resolving power rather than one of actual brightness or the amount of light reflection. However, it is comparatively easy to obtain surfaces which are bright, but much harder to obtain surfaces which are free from grain and sufficiently smooth to be used as mirrors, so we feel that this test is most useful.

Six parallel lines are ruled on a strip of card one centimeter long, the lines being two millimeters apart and each about half a millimeter wide. The operator sits at a desk with the sample laid before him and holds the card with the lines on its underside, looking at the reflection of the lines in the surface of the sample. He then raises the card until the six lines can no longer be distinguished in the reflection but merge into a single blur. He reads the height of the strip above the surface on a centimeter rule held vertically. The height can be determined to within half a centimeter, and the test is surprisingly reproducible.

Using the Walton method of evaluating the finish obtained, 1¾ inch x 2 inch test specimens of brass plate were polished at 25°-30° C. solution temperature and two amps. per specimen current. The effect of agitation and additives were clearly shown, as follows:

Condition	*Reflection in Cm.*
No agitation	5.
With agitation	12.
Optimum conc. of glutamate with agitation	21.

In commercial practice, articles being electropolished by this process range in size from small hooks, used in fitting out women's luggage, through several intermediate sizes and shapes to luggage binding corners. All of these articles except the hooks are electropolished by rotating a rack loaded with from 60 to 100 articles.

The cells which contain the solution or electrolyte are so constructed that the articles cannot accidentally come in contact with the cathode. For this purpose a ceramic jar is placed within a steel tank, which is made the cathode, the ceramic jar being of a size such that a space about 1 inch wide is provided between the jar and the tank. In the space so formed, cooling coils are conveniently placed.

Cooling is usually required, to maintain the bath at about 37° C. This arrangement practically eliminates a troublesome condition which sometimes occurs when electropolishing brass in an unseparated cell, e. g., small particles of metal, which have been deposited at the cathode, break away and adhere to the polished surfaces, resulting in a stain.

Racks supporting the articles are suspended in the cells from a mechanism which rotates the rack while in the bath. On completion of the required electropolishing time, the rack is elevated above the bath and permitted to drain for a few seconds, then the rack is removed and washed in a first rinse water; from there it goes to a final rinse at 65° to 70° C. The articles then are either dried for storage or go directly, in wet condition, to the varnishing or finishing operation.

As the two greatest losses of the bath are the water content, through electrolytic decomposition, and other constituents, through drag-out, the first rinse water is used as make-up in the cells, for specific gravity adjustment. By so doing, total losses of the bath are held at a minimum.

All of the parts electropolished in the above operation are 70-30 brass. However, a bath of the general composition given earlier will produce good polishes on many other metals and alloys.* Thus, a copper article is readily polished as are articles of copper alloys, such as beryllium copper; nickel silver and German silver, alloys of copper, nickel and zinc; monel metal, an alloy of nickel and copper; and bronze, an alloy of copper, tin and zinc. Stainless steel of several grades, and some of the alloys of aluminum are also polished readily.

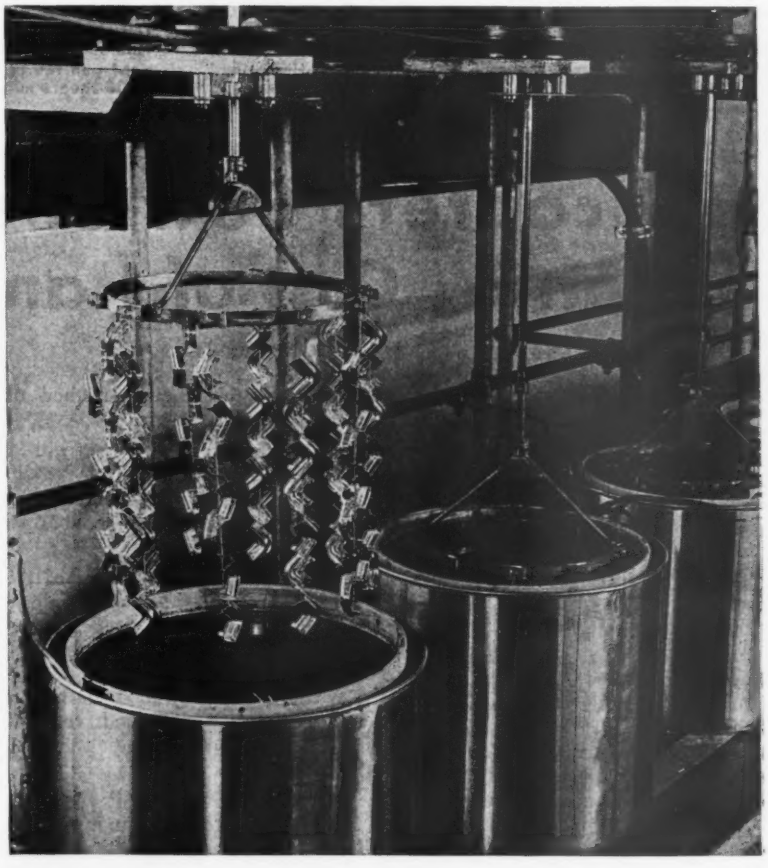
In addition to these alloys there are some, notable for their hardness or strength at elevated temperatures, of the nickel-molybdenum-chromium-iron type which are also readily electropolished.

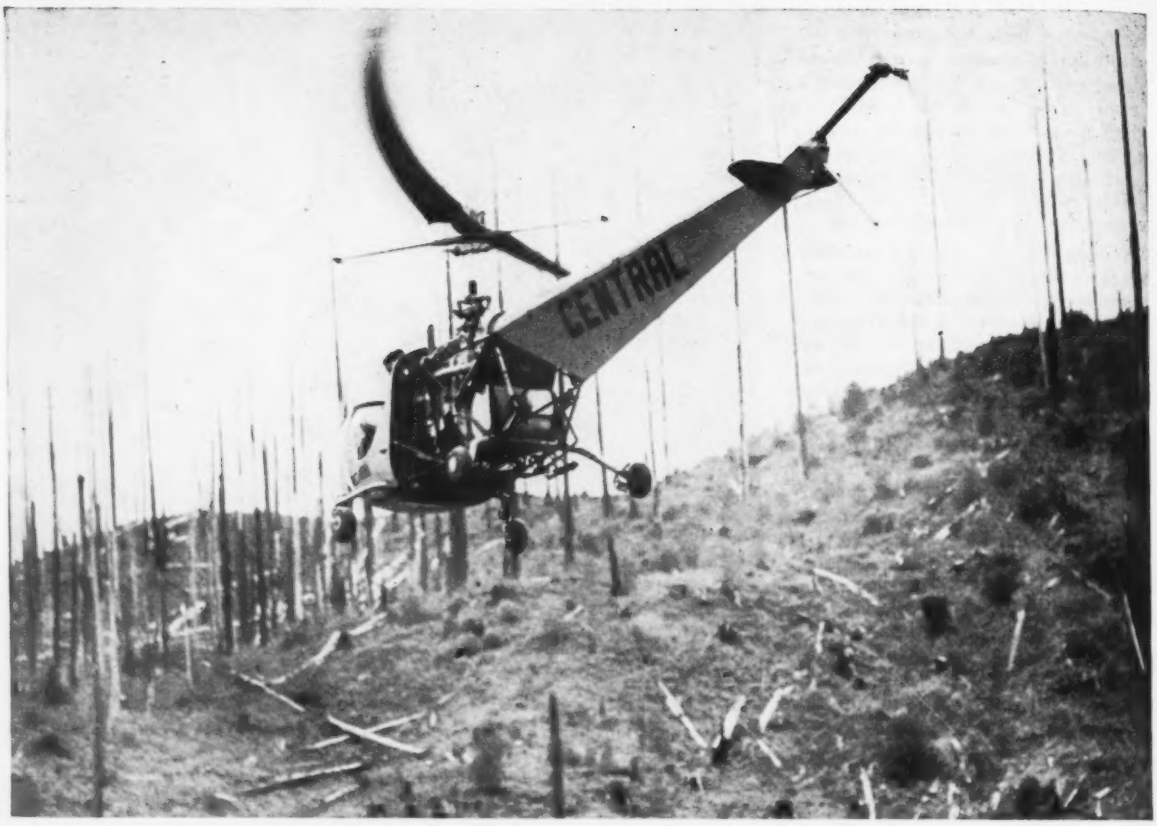
Electropolishing, while a relatively new tool in the metal finishing industry, has found wide application in finishing stainless steels, but we believe it is destined to become equally valuable in the polishing of many other metals and alloys.

*Patents are being secured on various novel features involved in the bath and its use, the policy with respect thereto being to license any reputable user on a reasonable basis.

• Operator strings parts on wires, which will be clipped to rack for electropolishing.

• Cells used in electropolishing luggage hardware. These four cells shown below are now regularly producing quantities in excess of 17,000 pieces per eight hours.





• Foresters take to the air in this first major tree seeding in the big Oregon forest rehabilitation program this fall. Helicopters will plant 36 square miles of denuded timberland that has been leveled three times by fire in the last 16 years.

This picture was taken near Owl Camp in the center of the Tillamook burn during a trial run, and shows type of equipment and the rugged terrain it will cover. Tillamook burn is a 500-square mile tinder box between Portland and Tillamook.

Helicopters Sow Seeds at Less Than ⅓ Cost of Handplanting

THE state of Oregon, with blessings of the lumber industry, has started to turn a $1,800,000 annual forest loss into a $1,000,000 cash income in perpetuity.

The project, to get into full swing this fall, will take an investment of $10,000,000, making a nice margin of profit.

About November 1 state foresters will move into the Coast Range mountains with "hazel hoes" and year-old Douglas fir seedlings, $1,000,000 of which will be planted in burned-over snag patches before April. From three to four helicopters will be "buzzing" the mountains from a 30-foot altitude, scattering a third of a pound of tree seed to the acre where ground conditions make this cheaper method of planting feasible.

In all, this year 1,000 acres will be handplanted at a cost of from $15 to $20 an acre and 36 square miles will be seeded aerially at a cost of about $6 an acre.

It will mark the beginning of the state's 15-year forest rehabilitation program to put 700,000 acres of state-owned timberland on a maximum production basis. Governor Douglas McKay describes the $10,000,000 project —to be financed with funds voted by the people—as "the largest forest rehabilitation job in the history of the North American continent."

Professional foresters say it probably is the largest such job ever attempted in the world. Only now has forest science advanced to the stage where such large sums of money can be spent in such a new type of "farming" with assurance of making a profit and not losing your shirt.

Center of the project is the famed Tillamook burn, which in 1933 blackened Northwest skies and dropped ashes on ships 500 miles at sea. Its 500-square-mile expanse of blackened snags has had meager new growth almost totally destroyed by two fires since.

Part of the program includes snag felling and intensive forest fire prevention to make sure such holocausts don't take their toll again. Every square mile of the big burn is connected with fire headquarters in Forest Grove, Ore., by

radio-telephone and firemen can reach any section within minutes from the first alarm. It's just like the operation of a city fire department.

The state's director of forest rehabilitation, R. M. Kallender, has had a crew of 25 foresters in the burn since June making preplanting studies. They will have covered 45 square miles by November 1. Every acre of that vast square mileage will have had 20 test plots of 13.2 square feet per plot established within it. From each will come exact data on soil condition, burn damage to soil, number of snags, number of young trees, other vegetation, fuel type and percentage of vegetation.

From this survey foresters will know where snag "fire corridors" will have to be cut, where seeds will grow trees, and where more expensive hand planting will have to be done.

Aerial photos are being taken of the entire Tillamook burn area as part of the state-wide program to help locate road systems left by loggers and to confirm ground survey work.

While initial survey crews are gathering data, some 60 logging operators are working in the burn daily, taking out several million feet of dead—but still usable—timber. Behind them will come the rehabilitation crews.

When the big burn is back to growing trees, crews will be working in smaller denuded areas around the state where fire and bad logging (before the present timber management era) have left lands without seed sources or young trees.

By the end of the 15 years under the present rehabilitation project, all state-owned timberland will be busy growing "trees for tomorrow." It is the culmination of a dream long held by veteran state forester Nels Rogers.

Lumber and other forest product operators, especially those with their own tree farms, welcome the state's move as a major step toward insuring a continuing forest industry for Oregon, now the Nation's No. 1 lumber producing state.

Forest industries now far outstrip agriculture as the No. 1 income producing factor in Oregon. Governor McKay believes this is a major reason why the people of the state, traditionally ultra careful about voting public funds or new taxes, voted to tax themselves ten million dollars to help perpetuate the forest industry.

The unusual project, first of its kind since tree farming grew out of the experimental stage, already has attracted the interest of foresters from around the world.

PLASTICS USED AS COATINGS IN PACKAGING

By GEORGE F. CHASE

Manager, Packaging Research Development Laboratory, Western Wax Paper Co., San Leandro, California

Material	*Principal Use*	*Remarks*
Cellulose Nitrate	Lacquers for glassine and cellophane wrappers, chip bags and decorative papers	Modified for special purposes. Very wide usage, heatsealing and moisture vapor resistant. Relatively inexpensive.
Ethyl Cellulose	High gloss, flexibility and waterproofing, washable wallpapers and hot or cold dip-coatings for metal parts	Moderate cost. Applied as lacquer, emulsion or hotmelt. Heat-sealing.
Polyvinyl Alcohol	Greaseproof, oil-resistant coating	Relatively costly—small amounts applied. Heat-sealing, water-soluble.
Polyvinyl Chloride-Acetate and Copolymers	Resists acids, alkalies and fats and oils, wide variety of uses	Moderate cost. Heat-sealing. Applied from solution or emulsion.
Polyvinylidene Chloride (Saran)	Paper used for oily or greasy foods, bottlecap liners	Moderate cost — heat-sealing, moisture proof and inert. Applied from latices.
Polyethylene	Paper for low-temperature applications or for chemical inertness	Moderate cost—(same as above currently). Heat-sealing. Applied by casting, calendering, solution (hot) or hotmelt.
Rubber Hydrochloride (Pliofilm)	Water-vapor resistant papers	Moderate cost—(same as above, currently). Heat-sealing. Applied from latices.

Other plastics—less generally used—cellulose acetate, polystyrene and copolymers, polyvinyl butyral, phenolics, alkyds, coumaroneindene and terpene resins, "Teflon" (polytetra-fluoro-ethylene) nylon and zein.

PLASTICS USED FOR RIGID AND SEMI-RIGID PACKAGES

Material	*Principal Use*	*Remarks*
Polystyrene	Sheet and molded containers	Low cost—thermoplastic—transparent or opaque. Tough, inert chemically, rigid, non-toxic.
Cellulose Acetate	Sheet and molded containers	Low cost—thermoplastic—transparent and colors. Tough, non-blocking. Not heatsealable unless specially treated non-toxic, semi-rigid and rigid.
Ethyl Cellulose	Sheet and molded containers	Medium cost, thermoplastic non-toxic, easy to print, semi-rigid.
Vinyl Chloride-Acetate Copolymers	Sheet	Tough. Non-toxic, thermoplastic. Rigid and non-rigid.
Polyethylene	Molded containers, e.g., bottles, refrigerator dishes, etc.	Non-toxic, tough, thermoplastic semi-rigid, moderate cost.
Methyl Methacrylate	Molded containers	Relatively costly — excellent appearance. Inert chemically.
Vinyl Chloride-Acetate and Butyral	Molded containers	Moderate cost (Vinylite)
Phenol (formaldehyde)	Molded containers	Low cost
Urea (formaldehyde)		Low cost

Also (casting plastics and resins) phenol-formaldehyde, glyceryl phthalate and allyl, and molding compounds of melamine (and aniline) formaldehyde, silicone rubber, polyester, polyacrylic ester, rubber and polyamide (nylon).

Chemical Show Offers Solutions to Liquidate Practical Problems

CHEMISTRY lurks in every corner in industry, and advance indications of the chemical show and convention in San Francisco next month are that operating men in foundries, machine shops, canneries, lumber mills, and various other establishments will attend in considerable numbers.

One reason for their attendance is to become posted on the possible development of by-products. Another is to get a better understanding of the detergents, coolants, lubricants, and other supplies they use, so they will not be totally dependent on the word of a salesman or the claim of a manufacturer.

Operators of automatic screw machine plants, for example, are becoming conscious of the fact that the life and usefulness of their equipment can easily be affected by the cleaning preparations used. Consequently chemical knowledge that may be picked up at such a conference is highly useful.

When first held in San Francisco two years ago, the chemical show and conference brought industrial people from 35 states of the Union and 20 foreign countries. It was outstanding for its exhibits, the technical information presented and for the surveys of the growth of various facets of the Western Chemical field.

The affair will be held at San Francisco's Civic Auditorium November 1 through November 5. A particular feature this year will be a study of the possibilities of expanding the growing Western chemical industry through processing raw material imports now being sent to the East and South for that purpose.

This subject will receive serious examination and discussion at the Pacific Industrial Conferences, to run concurrently with the Pacific Chemical Exposition. Under auspices of the World Trade Section of the San Francisco Chamber of Commerce, the first day and a half of the big five-day chemical industrial meet will be devoted to examining the West's chemical industries in the light of world export and import, with special emphasis placed upon making the processing of West Coast imports a home industry.

"Seventy-five to 80 per cent of Pacific Coast imports are basic raw materials needing refinement, cleaning and other forms of processing," Marcus W. Hinson, manager of the exposition and conferences pointed out. "Fibers, vegetable oils, crude drugs, ores, metals, minerals, gums, balsums, resin — all these and many others are sent to old established houses in the East and the Gulf states for processing—even though eventually they are to be returned here for use or export.

"To many in Western chemical industries, this appears a needless waste of time and money, and a deprivation of a large potential industry for the West. Conference discussions, therefore, will be directed toward possible ways and means by which Western chemical industry might capture this processing market—or at least, a portion of it."

Imports capable of Western processing will be discussed by speakers, as well as factors affecting processing of imports and marketing of Western production, such as manufacturing costs, freight rates and distribution problems.

MARCUS W. HINSON
Exposition Manager

"The Western Chemical Industry in the World Picture will be the topic of a luncheon talk on November 1 by L. I. Doan, president, The Dow Chemical Company. Panel discussions will be held on "Export Markets for Western Chemicals" and "Review of Current World Chemical Developments."

Attendance at the Pacific Chemical Exposition and Conferences is expected to exceed 15,000, according to Hinson. "Because chemistry and chemical research are so interwoven with all industry, we expect technical and executive representatives from practically all industries," he said. "Anyone in the world who is interested in this area industrially may participate or attend this great international exposition and these conferences."

Most important of the many activities associated with the Pacific Chemical Exposition are the Pacific Industrial Conferences. Following are the programs of the cooperating organizations. Everyone registering (no fee) at the Pacific Chemical Exposition is welcome to attend any or all of these programs.

AGRICULTURAL AND FOOD CHEMISTRY DIVISION AMERICAN CHEMICAL SOCIETY, CALIFORNIA SECTION

Friday, Nov. 4, Larkin Hall, Civic Auditorium.

Co-Chairmen: Ray H. Nagel, Technical Assistant to the Director, U.S.D.A. Laboratory

John R. Matchett, Food Research Coordinator, U.S.D.A. Laboratory

Economic Trends in the Western Food Processing Industry

Recent Developments in Food Crop Production on the West Coast—S. B. Freeborn, Assistant Dean, College of Agriculture, University of California.

Technological Trends in the Food Processing Industry

Utilization of Fruit and Vegetable Cannery Wastes—W. B. VanArsdel, Assistant Director, Western Regional Research Laboratory.

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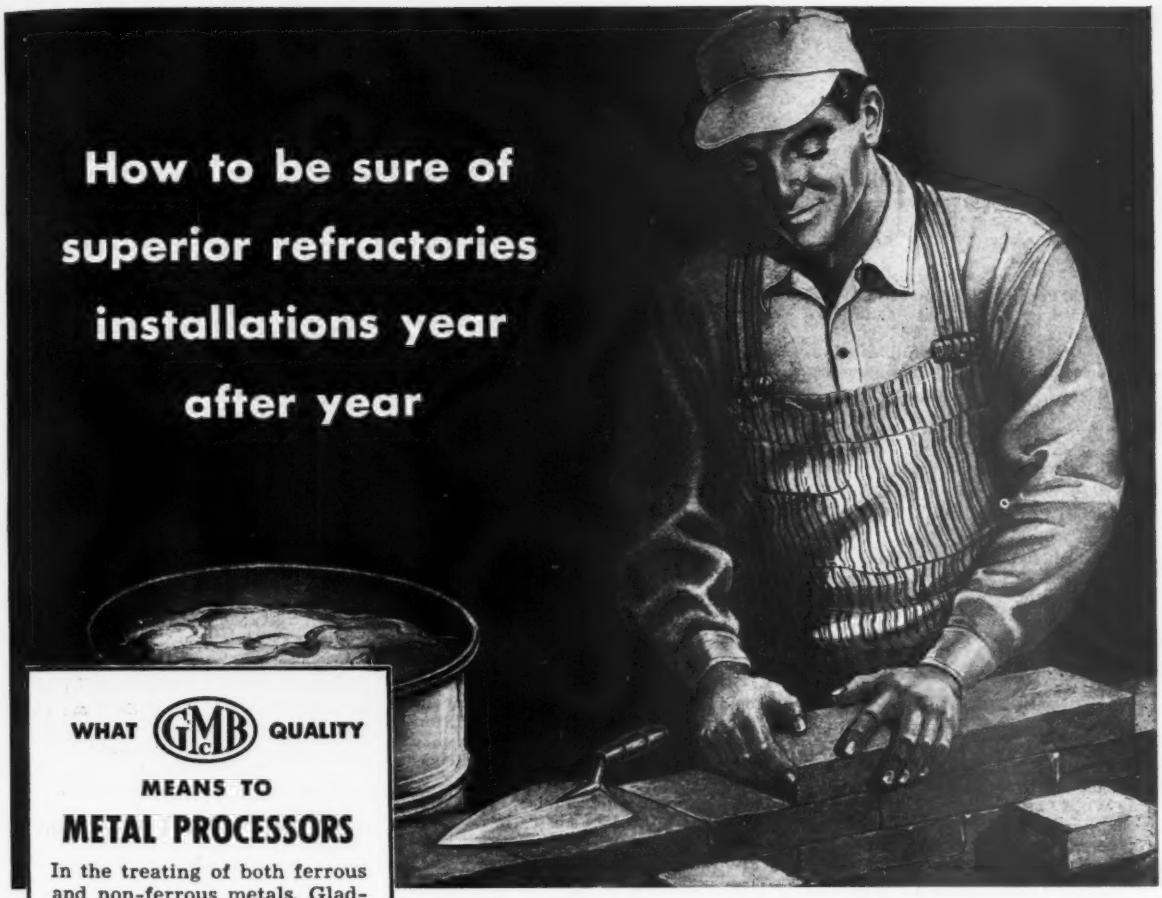

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CHEMICAL SHOW

(Continued from Page 46)

AMERICAN INSTITUTE OF CHEMICAL ENGINEERS

Northern California Section

Wednesday, Nov. 2—2:00-5:00 p.m., Larkin Hall, Civic Auditorium.

Recent Developments at the American Potash & Chemical Corporation — Russell W. Mumford, vice president and consulting engineer, American Potash & Chemical Corporation.

Desirable Personal Characteristics for Technical Personnel—Allan R. Cullimore, President Emeritus, Newark College of Engineering.

History of Chemical Engineering as a Profession—W. L. Badger, consulting engineer.

Dinner:

New Approaches to Old Processes (Dinner Talk)—W. Hirschkind, director of research, Great Western Division, The Dow Chemical Company.

FOREST PRODUCTS RESEARCH SOCIETY

Northern California Section

Friday, Nov. 4—1:00-5:00 p.m., Room 409, Civic Auditorium.

Chairman: Robert A. Cockrell
Professor of Forestry
University of California

Uses of Redwood in the Chemical Industry—Byrne Manson, California Redwood Association.

Surface Coatings and Preservatives for Wood—Sam Mullen, Monsanto Chemical Company.

Use of the Electron Microscope in Revealing Wood Cell Wall Structure—I. Fischbein and A. Wiegand, U. C. School of Forestry.

NORTHERN CALIFORNIA INSTRUMENT ASSOCIATION

Thursday, Nov. 3—2:00-5:00 p.m., Room 402, Civic Auditorium.

Chairman: D. J. Pompeo
Shell Development Company

Extension of Rotameter Theory to Practical Applications—Vic Head, Fischer and Porter Co.

Solids Flow and Level Control in the Hypersorption Process—Clyde Berg, Union Oil Company.

Fluid Metering by Electromotive Force—L. M. Grossman, University of California.

Infrared Gas Analyzers for Plant Control—Vigo Smith, Shell Development Co.

Industrial Applications of Statham Transducers—C. A. Motz, Statham Laboratories.

Use of Instruments in Sugar Refining—T. R. Gillett, California and Hawaiian Sugar Refinery Corp., Ltd.

Thursday No. 3—7:30-9:00 p.m., Room 402, Civic Auditorium.

Chairman: Chet Beard, Bechtel Corp.

Possible Application of Printed Circuit and Miniaturization Technique—Cledo Brunetti, Stanford Research Institute.

Industrial Application of Radioactivity—L. R. Zumwalt, Tracerlab, Western Division.

Instrumentation for Industrial Hygiene—O. J. Sobol, U. S. Naval Air Station.

NORTHERN CALIFORNIA RUBBER GROUP *and* SOCIETY OF THE PLASTICS INDUSTRY

San Francisco Section

Friday, Nov. 4—1:00-5:00 p.m., Polk Hall, Civic Auditorium.

Chairman: H. J. Jordan
E. I. duPont de Nemours & Co.

Registration—1:00-2:00 p.m.

JAMES O. CLAYTON
California Research Corporation
Chairman of Exposition Committee

Introduction—H. J. Jordan, E. I. duPont de Nemours & Co.

Engineering of Rubber Products for Industrial Needs—W. D. Good, Factory Manager, American Rubber Mfg. Co., and chairman Northern California Rubber Group.

The Outlook for the Rubber Business in the Inter-Mountain and Pacific Areas—F. E. Schluter, president, Thermoid Company.

Tires

Tire Recapping Materials—Griffith F. Oliver, president, Oliver Tire & Rubber Co.

Plastics (the Plastics Business)—H. Norman Eierman, industrial sales manager, Remler Company.

Plastics (the Industrial Applications)—Ferdinand T. Kebely, San Francisco representative of the Society of the Plastic Industry, K-Plastix.

Plastics (Vinyl Plastics Invade the Rubber Field) — G. A. Fowles, sales manager, plastic materials, B. F. Goodrich Chemical Co.

Applications of Neoprene and Cold Rubber in Electrical Cable—Gene Huxley, chemist, Western Insulated Wire Inc.

Friday, Nov. 4—5:00-8:00 p.m., Hotel Whitcomb.

Assembly for Banquet—5:00-6:00 p.m.

Banquet—6:00-8:00 p.m., Hotel Whitcomb.

Commercial Aspects of Cold Rubber (Dinner Talk)—Leonard K. Firestone, president, Firestone Tire & Rubber Co.

Friday, Nov. 4—8:15-9:30 p.m., Polk Hall, Civic Auditorium.

Cold Rubber Compounding and Processing—Dickson Sheppard, chief chemist, Goodyear Tire & Rubber Company.

Panel Discussion Chairman
Ross E. Morris, Sr.
Rubber Technologist, Mare Island Navy Yard Rubber Laboratory

Panel Discussion—Panel is to be made up of speakers and the following additional rubber chemists: William J. Haney, general manager, Kirkhill Rubber Company, and R. E. Hutchinson, chief chemist, Firestone Tire & Rubber Company.

PACIFIC ASSOCIATION OF CHEMISTRY TEACHERS

Friday, Nov. 4—9:00-12:00 noon, Civic Auditorium.

How Can Colleges and Industry Cooperate to Produce Better Chemists?

Panel of four industrial chemists and three college professors.

Friday, Nov. 4—1:30-4:30 p.m., Civic Auditorium.

Chairman: Norris W. Rakestraw
Scripps Institute

Symposium on Visual Aids

Topics to be covered will include:
Films for Classroom Use and Their Sources
Lecture Demonstration Illustrating Industrial Processes
Slides
Film strips
Exhibits available from industries

Saturday, Nov. 5—9:00-11:30 a.m., Civic Auditorium.

Chairman: L. Reed Brantley
Occidental College

Business Meeting

Saturday, Nov. 5—12:00 noon, Luncheon, Hotel Whitcomb.

The Future of Chemical Industry in the Eleven Western States (Luncheon Talk)—Frederick G. Sawyer.

Saturday, Nov. 5—2:00 p.m.

Field Trips—Stanford Research Institute, Microwave Laboratory, and the Stanford Campus.

PACIFIC INSECTICIDE INSTITUTE

Thursday, Nov. 3—1:30-5:00 p.m., Polk Hall, Civic Auditorium.

Chairman: G. F. MacLeod
Sunland Industries

Agricultural Chemicals—A Ten-Year Review

Botanicals As Insecticides—C. S. Hensill, California Spray-Chemical Corp.

Chlorinated Benzenoids As Insecticides—C. O. Persing, Stauffer Chemical Company.

Fumigants—A. F. Swain, Eston Chemical Company.

Acaricides—D. B. Scott, The Sherwin-Williams Company.

Non-Petroleum Herbicides—R. N. Raynor, Great Western Division, The Dow Chemical Company.

Petroleum Herbicides and Insecticides—Lorel G. Smith, Shell Chemical Company.

Rodenticides—Charles D. Thurmond, Monsanto Chemical Company.

Chemicals For Seed Treatment—Merle Ward, E. I. duPont de Nemours & Co.

Chlorinated Napthalenes As Insecticides—W. E. McCauley, Julius Hyman & Company.

Defoliants—Lloyd Rooke, American Cyanamid Company.

Organic Phosphates As Insecticides—C. C. Cassil, Niagara Sprayer Division, Food Machinery Corp.

Fungicides—L. L. Isenhour, Rohm & Haas Co.

Fertilizers—Weller Noble, Pacific Guano Company.

Discussion.

PETROLEUM DIVISION, AMERICAN CHEMICAL SOCIETY

California Section
and
AMERICAN INSTITUTE OF MINING ENGINEERS

Tuesday, Nov. 1—1:00-5:00 p.m., Larkin Hall, Civic Auditorium.

Chairman: E. L. Walters
Shell Development Company

The Future of Energy Sources in the Western States

Water Power—Lesher Wing, regional engineer, Federal Power Commission.

Coal—V. F. Parry, supervising engineer, Bureau of Mines.

Liquid Petroleum—Howard G. Vesper, president, California Research Corporation.

Oil Shale—S. F. McAllister, associate director, Shell Development Company.

Gas—Roy Wehe, consulting engineer.

PROTECTIVE COATINGS GROUP

Thursday, Nov. 3—7:30 p.m.
Chairman: Frank A. Leibold, Jr.
Irwin Paint Co.

Smooth Surfaced Resilient Floor Coverings—H. W. Crockett, Research Department, Paraffine Companies, Inc.

The Electroplating Industry on the West Coast—B. Marcum, technical representative, Electro-Chemicals Department, E. I. duPont de Nemours & Co.

Silicones for the Protective Coating Industry—John J. Tyner, manager, Western office, Dow Corning Corporation.

WESTERN CHEMICAL MARKET RESEARCH GROUP

Tuesday, Nov. 1—9:15-12 noon, Polk Hall, Civic Auditorium.

Symposium: Regional Requirements for Chemicals (by geographical areas)

Introductory Remarks

Pacific Northwest Area

LEO R. GARDNER
California Spray Chemical Corp.
In charge of Pacific Industrial Conferences

Columbia River Area

Intermountain Area

Bay Area and Northern California

Southern California Area

CHEMICAL INDUSTRIES SECTION WORLD TRADE COMMITTEE SAN FRANCISCO CHAMBER OF COMMERCE

Tuesday, Nov. 1—12:00 noon, Luncheon.

The Western Chemical Industry in the World Picture (Luncheon Talk)—L. I. Doan, president, The Dow Chemical Company.

Tuesday, Nov. 1—2:00-4:30 p.m., Polk Hall, Civic Auditorium.

Export Markets for Western Chemicals

Review of Current World Chemical Developments

Discussion—Panel Members.

Wednesday, Nov. 2—9:30-11:45 a.m., Polk Hall, Civic Auditorium.

Processing Imports by the Western Chemical Industry

Imports Capable of Western Processing

Factors Affecting Processing of Imports and Marketing Western Production
- Manufacturing Costs
- Freight Rates
- Distribution Problems

Discussion—Panel Members

LIST OF EXHIBITORS

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American Heat Reclaiming Corp., 1270 Sixth Avenue, New York 20, New York. Host: Douglas R. Stiehl 1-2

American Optical Company, Scientific Instrument Division, Buffalo 15, New York. Host: Ray G. Betka.... 42

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Hills-McCanna Company, 3025 North Western Ave., Chicago 18, Illinois. Host: Douglas R. Stiehl.... 1-2

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WORDEN WARING
Shell Development Company
In charge of Registration

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LABOR and the INDUSTRIAL WEST

(By Western Industry's Labor Relations Analyst)

Union Politics, Not Racial Discrimination

UNION politics, which kept negroes and others without seniority on the long shore rolls when the sensible thing would have been to have dropped them, is the real reason for the present hue and cry over unemployment of negroes on the San Francisco waterfront, rather than racial discrimination, according to Almon Roth, president of the San Francisco Employers Council, in his recent argument against a proposed Fair Employment Commission for the city.

"The colored members of our community are among our latest arrivals," he said. "Before the war we had no colored people . . . in a very short time, some 35,000 came. Mostly they worked in industries like shipbuilding and stevedoring . . . many colored workers now find themselves out of these jobs .. . enough time has not passed to have them absorbed . . . also, under the seniority rules governing most employment in the city a reduction in jobs, throws these newcomers out first. This is normal . . . and has nothing to do with discrimination.

"At this very moment many of the most experienced old hands on our waterfront are being deprived of adequate take-home earnings because some 3,000 colored workers were employed as stevedores during wartime peak operations and are still being retained on the longshore rolls even though the work opportunity has greatly diminished . . .

"The sensible thing to have done in this situation would have been to drop from the rolls the newcomers on the waterfront, including many of these colored workers, at a time when they could more readily have obtained employment in other fields. Because of the cry of racial discrimination, which was set up by the union leaders for union political reasons, this was not done."

Nathan Report Discredited

RECENTLY released figures from the Department of Commerce knocks most of the statistical props out from under the CIO-Nathan report, according to the Industrial Relations Council of Utah. The Council's comment is highly useful for employers and personnel men in negotiations, plant publications and talks with employees.

The essence of the Nathan report is the so-called "purchasing power" theory of money. In general, the belief is that the more money available, the more economic prosperity. This particular economic theory is very palatable to union leadership, as it supports their constant pressure for wage increases. The Nathan report was designed primarily to support such argument.

Figures Prove It

Even Mr. Nathan would have a hard time convincing anyone that there has not been a business decline since last year. Yet the Department of Commerce figures show that personal incomes for the first five months of 1949 are 3 per cent higher than last year's corresponding first five months; the distribution of income has been such that the trend of lower income groups receiving proportionately more of the total income is maintaining itself.

The point of this is that the business decline is due to something other than a decline in purchasing power, something more closely related with the lack of willingness to use the purchasing power available. Evidence of this fact is that total savings have increased whereas department store sales have decreased. Consequently, the wage-price relationship is not the cause for reduced business activity, as the CIO and somewhat the AFL, have maintained.

New Overtime Regulations Issued

NEW overtime regulations issued by the Wage-Hour Administrator, include the following points, according to an interpretation by the San Francisco Employers Council:

The Wage-Hour Administrator takes the position in his new regulations that the new "Overtime-on-Overtime" law guarantees treatment of only certain premium payments as "true overtime." Such extra compensation must provide for a premium payment of at least time and one-half for work on:

(1) Saturdays, Sundays or holidays, or on the sixth or seventh days of the workweek, and

(2) For work outside the hours established as the basic, normal or regular workday of not more than 8 hours or regular workweek of not more than 40 hours.

The Administrator stresses that the premium rates under (1) above must be not less than time and one-half times the rate established in good faith for like work performed in non-overtime hours on other days, and under (2) above must not be less than time and one-half times the rate established in good faith by contract or agreement for like work performed during such workday or workweek.

According to the Administrator, any premium payments which do not meet the criteria set forth in his attached statement cannot be treated as "true overtime" premiums for purposes of the Act and must be included in the employee's regular rate. This included such items as night shift premiums and premiums for dirty, onerous or dangerous work. However, extra compensation less time and one-half will be regarded as "true overtime" when such payments are made because the employees have

previously worked a specified number of hours or days according to a bona fide standard.

There is no change in the Administrator's position that payments for hours not worked (i.e., idle days, holidays, vacation, illness) may be excluded from the regular rate and cannot be credited toward any statutory overtime due.

Calif. Processors vs. NLRB vs. Labor Decision Aired

AFTER four years of being on the receiving end of a three-way battle between the CIO, the AFL and the NLRB, the California Processors and Growers Association, Oakland, finally won, at some further sacrifice—but justifiable in their judgment—the important point for which they were fighting.

Time after time the NLRB held the contract between the AFL and the association and its membership to be illegal and each time ordered the members to cease and desist from dealing with that union alone and to throw out the contract. Finally, on September 2, 1949, the NLRB issued an order, in which it agreed to approve the contract with this AFL union as valid.

But, and this is the extraordinary feature in the decision and its publicity, the board did not publicly mention this crucial fact. The facts, all excepting this important and significant one, were all detailed in the press releases! Which just goes to show employers still have a hard time when dealing with the board!

This famous California battle started in 1945 when the CIO tried to raid the membership of a federal union, chartered by the national AFL, which had contracts with the industry. This move brought about an election by the NLRB in which each of the unions failed to get a majority, but the AFL had a plurality of the votes cast. The companies continued to recognize their AFL contract and dealt with that union, and not with the CIO.

The following year, on the anniversary date of the contract, the board moved in at the instance of the CIO and ordered the companies to cease dealing with the AFL exclusively, but to deal with both unions, as neither had a majority. The AFL, still with its plurality, told the companies that they were there first and were entitled to the recognition, and the canners, probably with the encouragement of the Teamsters' Union, decided to go along with the AFL.

(Continued on next page)

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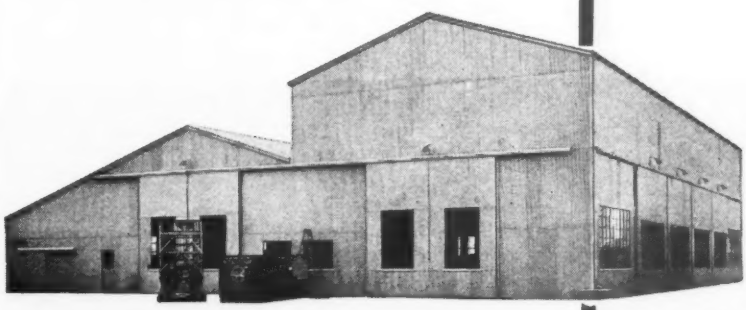

Pan - American World Airways Shop Building, San Francisco Airport. Rigid frame construction with overhead traveling crane.

Expert, economical, rapid custom fabrication utilizing modern rigid frame construction.

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Also Fabricated Structural Steel, Tanks, Bridges and Towers, Barges and Dredges, Service Stations and Equipment, Plate Work, Steel and Sheet Metal Products, Steel Erection, Truck Tanks, Miscellaneous Iron. Jobbers of Steel Shapes, Bars, Plates, Sheet Metal.

INDEPENDENT IRON WORKS INC.

EIGHTH & PINE, OAKLAND 7, CAL. — PHONE TEMPLEBAR 2-0160

LABOR *(Continued from Page 51)*

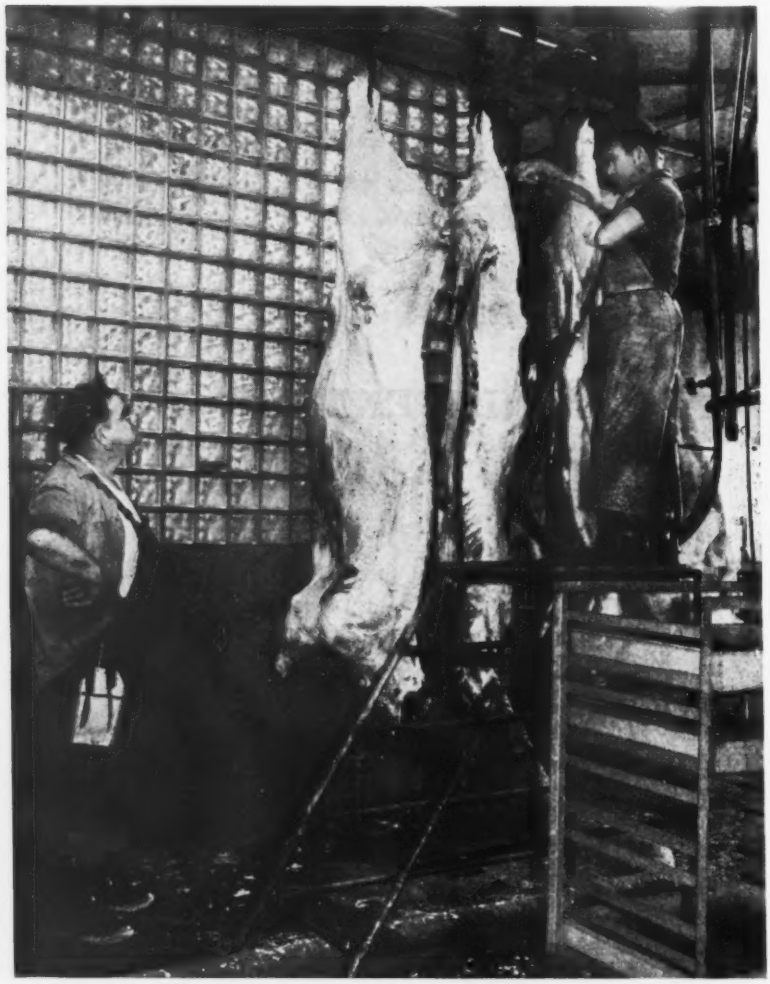
While this was going on, many employees, some AFL, some CIO, were discharged by the companies and some 1300 of these filed charges against their former employers.

Hearings started on these discharge cases and on the so-called "illegal contract" in 1947 and have been kept warm up to this late summer. Then came the decision of the board, which provided that the companies, without admitting any violations of the law, agreed to:

1. Give discharged employees back pay up to $205,000;
2. Reinstate all employees, except 24 whose firms are now out of business;
3. Cease interfering or coercing their employees in their right to form or to join labor organizations;
4. Cease encouraging membership in the Teamsters' Union or discouraging membership in any labor organization;
5. Post notices announcing that they will cease any illegal interference with their employees' right to organize.

The Teamsters' Union in the compromise settlement, agreed to revoke all outstanding fines levied against any of the employees who suffered discrimination, and not interfere with the right of any individual to reinstatement.

The employers, faced with longtime litigation by the government, maybe up to the Supreme Court, and with the board willing to label their AFL contract as valid, which was all they were fighting for all the time, accepted, under the circumstances, the payment of up to $205,000 to former employees to clean up the mess. This amount, they figure, would just about take them to the Supreme Court anyway. Incidentally, it is said to be the largest back-payment for discharged employees since the NLRB was set up.



• Labor of love: Here is an industrious individual (left) who is obviously happy and satisfied with his work. But this is really a picture of Western beef at Coast Packing Co., in Vernon, California. After the carcasses are washed in this glass-brick shower bath, they are passed along the line where they turn into tasty steaks.

Wage Changes

Wage changes made and those not made, when contracts were negotiated so far this year, according to a study made on the wage changes report of the Bureau of Labor Statistics for the month of July, and looking back on similar reports for the past three months, reflect a growing disarrangement in our economy.

Roughly, many employers in the capital goods industries, either are not granting wage increases or they are managing to postpone negotiations until later on. Where these industrialists do make wage changes the amounts are relatively small, when compared with last year. And this applies also to industries producing many consumer goods.

Almost unanimously, employers dealing in consumer goods of the perishable kind, such as milk, bread, beer, packaged food and so on, are reported month after month, since last spring as increasing wages, and many in sizeable amounts.

The following summary should illustrate this trend:

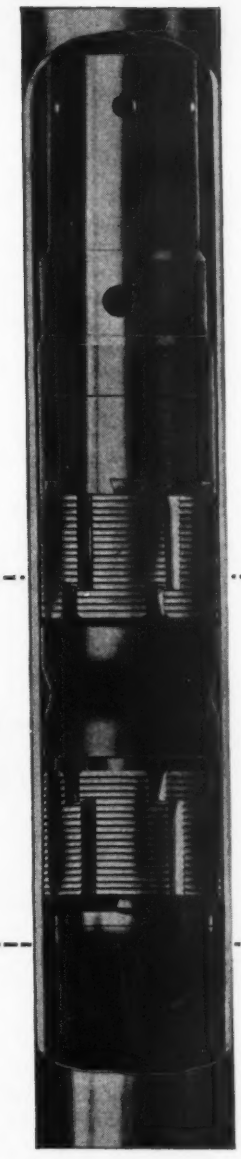
Metal working and miscellaneous manufacturing — Some 180 contracts were closed for one period or another—many for short periods—with unions, covering something more than 120,000 employees. Some groups, and some multiple plants are included in the total. With some 114 bargaining units, most of whom closed contracts for the time being, 65 did not increase wages and 49 did so. Many of both groups added additional holidays, bonuses and other fringe benefits.

Stone, clay, and glass—37 companies with 14 bargaining units. 10 of the units raised wages from 2½ cents to 15 cents, (for drivers), and 4 did not, but provided for extending the contracts with 60 days reopening for 3 and anytime for the fourth.

Food and kindred products—Some 49 groups of employers with some individuals employing approximately 33,000 people, heavily weighted with bakers, dairies, processed food, breweries, and so on. This classification lists four groups in the entire country who did not raise wages when renewing contracts. One of these is the fish canneries in the Lower Columbia area of Washington and Oregon; another, 6 fish canneries at San Diego. Both added something to employee benefits.

Printing and publishing—31 groups and individuals, newspapers and commercial printers mainly. All but two raised wages and these two gave fringe

(Continued on Page 54)



Drillable Bridging Plug made by the Lane-Wells Company, Los Angeles, California, whose successful setting depends on the shear strength of two small pins of Revere Herculoy. These plugs vary from 38" to 58" in length.

These are the two small pins, made of Revere Herculoy to standard shear strengths, thus assuring proper setting of the Tripset plug. Pins are shown actual size.

Dependability protected through standardized-strength Herculoy

• Here is a case in which the successful operation of a large and somewhat complicated device depends upon one of its smallest and least expensive parts. The parts are two pins of Revere Herculoy. The device is a plug employed to seal off an oil well at any desired depth, to prevent taking oil or water from lower strata.

Proper setting of this plug within the well depends on those two small pins. They must shear at exactly the right load, imposed by a special setting tool. If the pins should shear too easily, the plug might not be securely set in the well and might fall to the bottom; if the pins were too tough, the plug might not set at all. From the material standpoint, successful operation of a device costing as much as $310.00 depends on the uniform shear strength of a few cents' worth of rod.

It was to assure that uniformity that the Revere Technical Advisory Service was called into action. Studies were made of the needs, tolerances specified, and means devised to assure meeting them. The specifications when finally drawn up were rather unusual, and their fulfillment is another demonstration of Revere's ability to turn out special orders when absolutely necessary. Incidentally, Lane-Wells Company, maker of the Drillable Bridging Plug, also uses Revere phosphor bronze, strip brass, Herculoy rod and free-cutting brass rod for other parts.

Before you place your next order for copper and copper alloys, get in touch with the nearest Revere office. And remember, if you are having any difficulties in the employment of copper and brass mill products, the Revere Technical Advisory Service will gladly collaborate with you.

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COPPER AND BRASS INCORPORATED

Founded by Paul Revere in 1801
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Sales Offices in Principal Cities, Distributors Everywhere.

PACIFIC COAST DISTRICT SALES OFFICES IN SAN FRANCISCO, SEATTLE, LOS ANGELES

LABOR
WAGE CHANGES

(Continued from page 52)

benefits—as did many others along with wages—to their employees.

Petroleum—Eight companies increased wages and one, a Western refinery with 2,350 employees, gave no wages but did upgrade according to the report some 35 job-classifications, and gave some other benefits to employees. Four of the eight added to their cost-of-living bonuses. Total employees reported, 5,200.

Construction—many wage increases again reported over the country. General contractors in 46 counties in Northern California negotiated with representatives of around 120,000 construction workers and granted laborers 2½ cents, carpenters and drivers 5 cents, and operating engineers 6.5 cents (all per hour). Previously, slightly more than 8 cents per hour was gained by the same classifications in Southern California. The Bureau reports a recent survey of union rates for 85 American cities revealed a 2 per cent increase for the first 6 months of 1949, as against an increase of 7 per cent in the same period last year.

A study made by the Industrial Relations Council of Utah on wage increases from January 1 to August 1 this year shows that of the 30 groups of employers in the area, who reported, 23 had made wage increases ranging from 2 cents to 12½ cents per hour. Seven groups reported no wage increase during the period. The average wage increase given by the 30 groups was, the Council stated, 7½ cents per hour. This survey did not cover the usual fringe issues. A total of 201 employers were represented in the report.

INCREASE EFFICIENCY AND LOWER YOUR COSTS—

TWIN LIVE ROLLER Conveyors—merging at one operation point—now move heavy castings through this mid-western plant faster and more economically! And because aisle space has been used more efficiently, greater production has been achieved with no increase in floor space.

Your plant undoubtedly requires an entirely different materials-handling installation — and yet, the installation pictured above offers graphic proof of the superiority of A-F Conveyor Engineering.

Why Be Satisfied with Less? Write, without obligation on your part, for a frank discussion with A-F Engineers regarding the latest improvements in the handling of materials and products by means of A-F *Engineered* Completely Coordinated Conveying Systems. . . . Address Dept. W.I.

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METAL PRODUCTS CLEANING EQUIPMENT

Basic Issues of Hawaii Contest

NOT much has been published on the mainland regarding the findings of the Emergency Board appointed by Governor Stainback of Hawaii, in conformity with territorial law, about the longshore strike in the islands. From the point of view of the five citizens making up the board, the union had a very weak case.

Although not mentioned in the report, basic wages in the Islands are about 70-80 cents per hour. The union, with a base wage of $1.40, struck against the employers' final offer of 12c, demanding 32c. This same union, the board found, had been given 30c in 1946, nothing in 1947 and 10c in 1948, or 40c per hour in three years. These increases had been accepted by the leaders and the rank and file.

Union demand for "parity" or "near parity" with the wages paid on the West Coast for stevedoring, where common labor gets from $1.25 to $1.37½ cents per hour, must have sounded to the board members as something extraordinary, even revolutionary. The board found the West Coast rate is $1.82, Greater New York, $1.88, Savannah, Ga., $1.43, Hawaii $1.40 plus the offered 12c by the employers, which would be $1.52, or with the board's 14c, $1.54.

These figures were used by the board to discount the claim of the union that only longshore rates were used to judge other longshore rates; that nothing else was of any consequence. So, "parity," the board concluded, was not the absolute rule in the United States. Yet, it was all the union had to offer in the hearings before the board in Honolulu.

The board's recommendations, in digest, were as follows:

1. That the union call off its strike; that the employers increase stevedore

wages 14 cents an hour; and that eight cents of this be paid to March 1, 1949;

2. That the parties immediately negotiate the rates of other workers normally given wage adjustments along with the stevedores; and,

3. That the parties negotiate any "remaining problems involved in questions of jurisdiction over the employees of the bulk warehouses in Hilo."

In addition, the board also recommended "the establishment of a special community committee to study the problems of labor and management in Hawaii and to make recommendations to the Governor and to the community at large for the solution of basic problems involved." Also, it set out five broad points with which the recommended committee could begin.

Basic issues in dispute, as shown by the report, were as follows:

The union contended that the board should accept the principle of "parity"; that "this group of employees were the hardest working and the lowest paid stevedore employees in the entire United States." Lack of bargaining strength, their spokesman said, was the union's reason for the present differentials.

It was contended also that the maritime industry in the United States was an "intergrated" industry, and that the rates of employees must be compared and determined only in relation to other maritime work in other ports of the United States.. . . . "It was the opinion of the union that wage rates in the maritime industry had been set only in comparison with maritime industry rates, that other criteria such as ability to pay, cost of living, take-home pay, had no application in a dispute involving stevedore employees."

The employers stated the employees are well paid "compared with other rates in the community for work which may be of a higher level of skill than the stevedores"; their already high rates include payment for the hazardous nature of the work; the casual nature of the work is much greater on the mainland; men are employed directly by the individual employers; that the number of hours offered indicates that employment is more stable than elsewhere; that their first offer, based on the cost of living, was liberal; that an additional four cents was offered to avoid the serious consequences of a waterfront strike.

Comparisons, they contended, should be made with wages paid for other jobs of comparable skill and difficulty in the area where the employees live and work.

Special-Purpose SYSTEMS

designed to meet individual requirements, including:

CONVEYORS

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AUTOMATIC PALLET LOADERS

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DRYSET VACUUM SYSTEMS FOR GARMENT PRESSES

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Lamson Corporation puts at your service expert consulting, engineering and installation service based on broad research and experience in thousands of comparable installations.

Frequently standard systems, modified in only minor details, are adequate to handle complex jobs. Others are designed from the floor up.

Write for descriptive bulletins on any of the above equipment. A wire or letter will bring a technically-trained field man for consultation.

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Branch Offices in Principal Cities

Florida Citrus Growers Find a Juicy Market in California

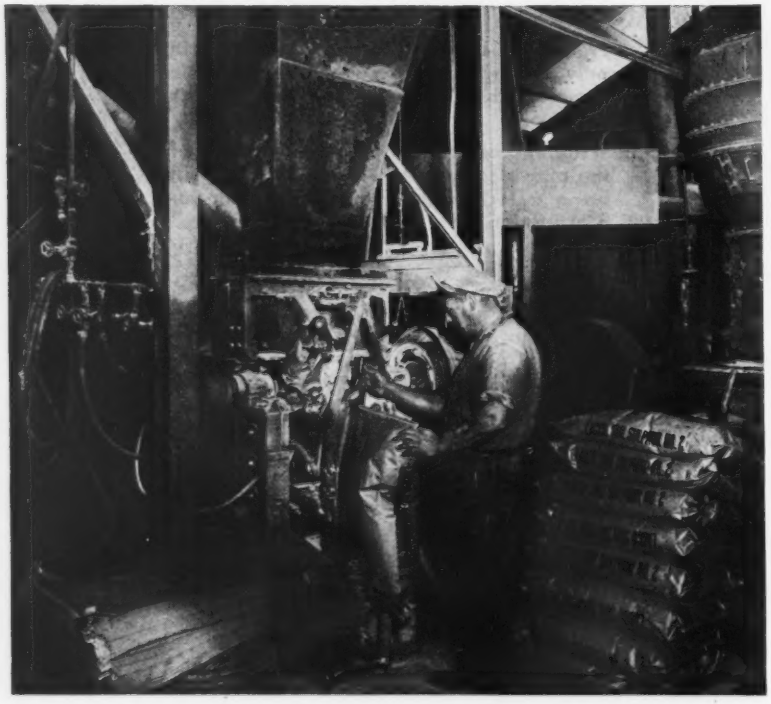
Frozen orange juice concentrate from Florida puts the squeeze on California's citrus industry; Western idea men still at work.

LOS ANGELES—If you would find the key to unlock the average housewife's sales resistance, offer her a gadget that will do away with work.

Any manufacturer who doubts this statement is invited to inspect any modern kitchen and count the labor-saving gimmicks that have been sold on this basis. Now one of the Wests' major agricultural industries soon may cash in heavily on this well-known principle. At least, if it doesn't, Florida citrus growers *will*—and that, to California's orange industry, would be the fate worse than death.

Years of sustained national advertising have made orange juice nearly as much a part of the traditional breakfast as bacon and eggs, but two new angles have been found to consolidate the year-'round demand for the morning eye-opener. One is the power-operated juicer which eliminates the squeeze, but not the mess, from juice preparation.

• Sulphur bagging operation in Los Angeles Chemical Company's fertilizer plant.



The other is the new frozen orange juice concentrate—a six-ounce can, plus 18 ounces of water, gives you 24 ounces of what is conceded to be "the nearest thing to fresh orange juice."

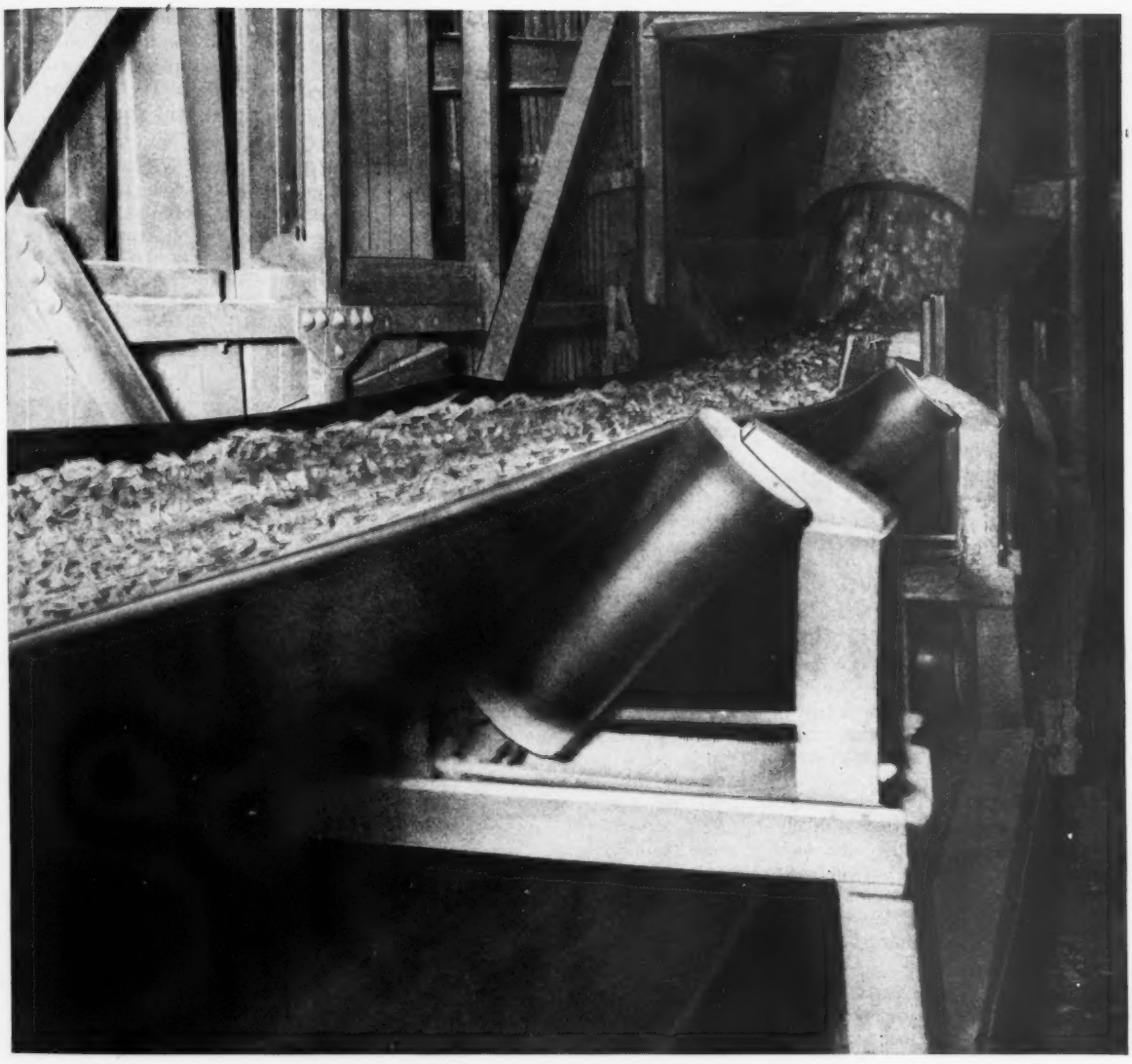
Outraged Western citrus men last year saw Florida packers move into the frozen juice field and roll up sales of nearly 40,000,000 cans before California producers could get organized. This year the pack will zoom to 160,000,000 cans—worth about $40,000,000—and California, hit by so much cold weather, will be lucky to double its last year's output, thus falling behind in the race. Since Florida produces no summer oranges, California growers now face new competition for their summer fruit.

Three large Western concentrators are turning out the frozen juice, but Sunkist, giant of the industry, hasn't yet decided how far to go into the new field. The expanded juice market would help solve the problem created by California's trees' habit, during the past few years, of yielding many small oranges instead of the big, choice, salad-type that brings premium prices. Then, too, Sunkist has experienced gratifying success in promotion of electric home juicers.

"We're selling more juicers now at $19.95," says a company executive, "than we did previously at $14.95." He estimates that 75,000 this year will be placed in U.S. kitchens, or twice as many as in the best pre-war year. Embarrassingly, the new fast-selling home juicer is built by a Chicago firm, to Sunkist specifications.

The big co-op also is going to town with two new commercial models that

(Continued on page 58)



45° Troughing Raises "Pay Load" 30%

From 20% to 30% increased carrying capacity was added to this conveyor belt—*at no added cost.* One of the world's largest pulp and paper mills needed to carry more wood chips to digesters. This had to be done without sacrificing belt life and dependable operation—for failure here stops a whole cycle of high speed operations.

Deep troughing would carry the increased load. So Pioneer engineers designed a belt with ply assembly that would stand troughing at 45° . . . and withstand this extreme flexing. The plies normally outlast covers—tough as the covers may be. So a longer-life cover was developed to fit the service.

Now well into its second year of operation, this 45° troughed, 36" wide belt, 725 feet long, has run day after day, almost around the clock, and shows no noticeable wear. A new addition to this plant, to be opened soon, will use large quantities of Pioneer belt—much of it deep-troughed, to get that 30% added capacity.

Do you have a belting or hose problem? Give your Pioneer Rubber Mills distributor a chance to help you solve it. His on-the-job know-how is supported by the research laboratories and manufacturing technicians of **Pioneer Rubber Mills** — *the West's Industrial Rubber Goods leader since 1888.*

Distributors:

SEATTLE • TACOMA *Washington Belting & Rubber Co.*
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KLAMATH FALLS . . . . *Klamath Machinery Co.*
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SALT LAKE CITY . . . . *National Equipment Co.*
DENVER . . . . *Western Belting & Packing Co.*

PIONEER RUBBER MILLS

BELTING • HOSE • PACKING • RUBBER COVERED ROLLS

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L. A. REGIONAL REVIEW

(Continued from page 56)

promise to open up important outlets in the restaurant, soda fountain, and hotel field. The smallest of these machines swallows up oranges at the rate of 50 a minute, spouting forth a continuous stream of fresh juice, while the largest model has nearly three times this capacity. Hand labor is virtually eliminated, meaning that orange juice can be featured on menus without creating a production bottleneck in the kitchen.

Sales Jump 1000 Per Cent

Sales of fresh orange juice in bottles has jumped as much as 1000 per cent in some big supermarkets which now make their own juice to be sold by the quart or the gallon. The machines are leased, with the operators paying according to gallonage handled, with built-in meters recording the flow. Incidentally, these machines are built on the West Coast and the producers, not yet geared up for mass production, already have more orders than they can handle.

Some trade sources, familiar with the shopping habits of the American housewife, are predicting that the frozen juice will prove even more successful when producers will pack it in a one- or two-serving size. Since orange juice is a frozen food item that is likely to be used every day, they say such midget cans should sell briskly in package lots, so that in small families the breakfast libation may be served fresh each morning, rather than carried overnight.

Surprisingly, food experts say the West so far is not a particularly good market for frozen juice because a large percentage of Western food stores do not have frozen foods equipment. Yet Sunkist feels that this area should have better-than-ordinary sales potential because of the higher earning power of the average Westerner.

New Ideas Born

Economic pundits frequently have pointed out that a potent source of the U.S. economy's amazing power to keep expanding is its perennial crop of new ideas for satisfying human wants. If this be true, don't worry about the future of Western industry. We have at least our share of "idea men." The recent high birth rate of industrial babies on the West Coast ought to be most reassuring.

For instance, if your own imagination fails to react to the name of one of the new products to hit the industrial market—the "automatic tristimulus integrator"—never mind. There are customers even for such gadgets as this one with the twelve-cylinder name — and some one who's ready to manufacture them. A new $350,000 plant is going up in Glendale to turn out this contrivance, which laymen properly might call a type of "thinking machine." It's a remarkable and swift color calculator, of use only to a few technical specialists in a little-exploited realm of science—one of a number of such preposterous gadgets being turned out by Librascope, Inc. The Librascope company began in 1937 as a builder of an "airplane load balance computer;" then during the war branched out into the abstruse field known as "cybernetics," manufacturing a variety of so-called mechanical brains, most of them electronic, optical or mechanical computers for the army or navy. In the postwar era it has continued to grow and in its new plant will boost its payroll from 300 to 500.

This product is but one of a great number turned out by the local colony of specialized industries, which still are exhibiting remarkable growth. At Pasadena, Gabriel M. Giannini has just come back from tests at White Sands, N.M., with proof that a new "bounding putty" will protect a motion-picture heliograph camera from damage after a fall to earth from a V-2 rocket shot to 100-mile altitude. The weird putty is a silicone, a material now used, for example as cores for some golf balls. It flows like molasses but bounces like the liveliest rubber. Leave a chunk of it in a drawer and it will slowly flow until it penetrates every tiniest crack or crevise.

Talking Refrigerator

Another bright idea which is not as wacky as it seems is a new combination refrigerator and radio set just put on the market by the General Air Conditioning Corporation. The superheterodyne receiver is mounted right in the door of the four-and-a-half cubic foot box, which despite its small size has a substantial amount of usable space, including even a vegetable bin. Not that housewives especially want to hear their soap operas booming forth from the refrigerator door. The new combination is a space-saver, designed for apartments, trailers, motels, and resort cabins. It likewise will solve for proprietors the problem of the disappearing radio set, which, if easily portable, has frequently been known to vanish with the departing guest.

Plastics have been adapted to many strange uses but one of the newest has been dreamed up by the Plas-Tex Corporation. It is a transparent plastic bowl which is inverted over a young plant to protect it against frost, affording a warm little hut which also serves as an incubator for sprouting seeds. Paper "hot caps" have been used for years, but the plastic withstands rain and wind and also admits sunlight. One man can install 500 of the bowls in half an hour —an all-day job with paper caps.

Another of the busy local colony of plastic gadgeteers is New Plastic Corporation, which makes a soft-faced hammer said to be more durable than rawhide, rubber, babbit, lead, or wood. It is said to deliver a "no-bounce" blow without striking sparks, and also has the remarkable ability to be self-healing, the plastic returning always to its original shape even after very rough treatment.

Parade of Products

Others among the recent bumper crop of unusual enterprises is Union Slide Fastener, Inc., which makes the only square-shoulder element zipper on the West Coast and also is distributing its own zipper-making machinery abroad. The Silver Streak Clipper Company of Venice is turning out an electric lawnmower made entirely of rust-proof aluminum alloy, except for cutter blades and bearings. Western Doll Co. is producing a cotton-stuffed doll "with a thousand faces." With special pencils the small owner may draw the faces to suit herself, changing them at will with the aid of ordinary cleaning tissues. Another plastic product is the pint-sized berry basket being marketed by Allied Plastics Company. The makers say housewives clamor for the plastic containers, soap dishes, and flower pots.

The first sewing machines to be manufactured west of the Mississippi are now being assembled by the Free Sewing Machine Company of Hollywood. This firm, which headquarters in Rockford, Illinois, has just opened a plant here to take care of West Coast customers.

Reversing the usual east-to-west trend of movement, American Latex Products Corp., whose operations in the new field of foam rubber were referred to recently in this review, now is opening branches in Philadelphia, Chicago, and Denver.

New Era of Railroading

Railroad dispatchers at Los Angeles soon will be directing train movements over nearly 700 miles of the Union Pacific's single-track line between Los Angeles and Salt Lake City, aided by a new system of "centralized traffic control." Electronic instruments and sensitive relays will enable them to close switches many miles distant, deflecting trains smoothly to sidings to permit priority or opposing trains to pass, then quickly switching them back to the main line. It will be one of the longest stretches

of "CTC" line in the world and will permit this transcontinental link to be operated with about 75 per cent of the efficiency of a double-tracked line.

Union Pacific's streamliners also will be slithering soon through a new tunnel in Wyoming whose completion will remove a bottleneck in transcontinental traffic movement. Within a few weeks, UP expects to put the recently holed-through Aspen tunnel into service, giving the line a continuous doubletrack between Omaha and Ogden.

These are part of the $200,000,000 post-war improvement program Union Pacific is now completing in a bold move to build traffic in the West. Company officials term it the "second rebuilding of the line since the famous golden spike was driven on May 10, 1869. It ranks with the general remodelling job undertaken by E. H. Harriman at the turn of the century. The present project includes complete dieselization of the entire main line from Salt Lake to Los Angeles; gradual replacement of track with a new type, high-speed 133-pound rail, and addition of 3000 refrigerator cars, 2000 coal carriers, 500 hopper cars, 85 new Pullmans, 50 coaches, and 17 diners, as well as rebuilding of 2500 box cars.

UP also has completed retarder yards at Pocatello and North Platte, built new car icing installations all along its line to improve handling of fruit shipments, and installed two-way radio-equipped switch engines. Recently its test runs with General Electric's first gas-electric turbine locomotives revealed that one of these ultra-modern, 85-foot power units at least equals a three-unit diesel and is able to scoot along at 79 miles an hour with loads of 3500 tons or more.

Meanwhile the railroad has been conducting an institutional advertising campaign in the nation's trade press, pointing out the industrial advantages of the West. Company executives now point to more than 1000 new industries located on UP lines since V-J Day.

Accident Prevention Award

American Petroleum Institute Accident Prevention Award has been presented to the Marketing Department of Standard Oil Co. of California, for setting a record of 1,097,586 man-hours of work without a disabling injury, between Feb. 19 and April 9, this year.

This is the first time the award has gone to an entire department of the firm, though smaller divisions of some departments have won similar honors by working at least 1,000,000 hours without disabling injuries.

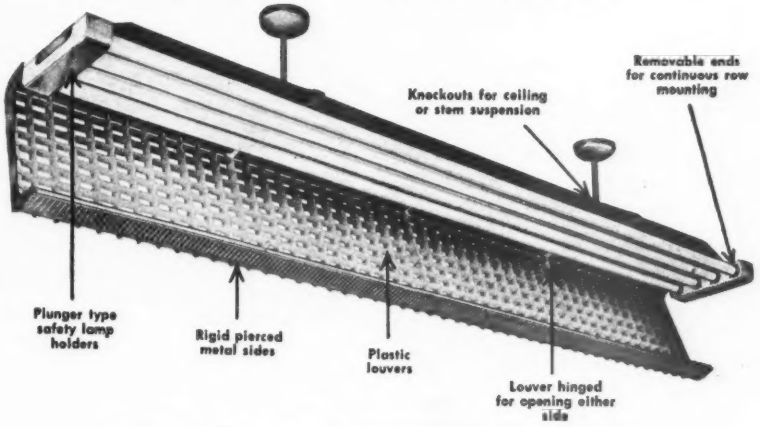
OUTSTANDING!

SMOOT-HOLMAN'S

New

CONSTELLATION

SLIMLINE FLUORESCENT


Removable ends for continuous row mounting
Knockouts for ceiling or stem suspension
Plunger type safety lamp holders
Rigid pierced metal sides
Plastic louvers
Louver hinged for opening either side

This outstanding luminaire utilizes the brand new high output 75 watt, 430 m.a. T-12-96" fluorescent lamp. It is scientifically engineered to produce the utmost in lighting quality and efficiency. "Wonderful — I've never seen such a beautiful unit!" says a leading illuminating engineer.

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SMOOT-HOLMAN
INGLEWOOD CALIFORNIA
MADE IN U.S.A. ®

Offices in Principal Western Cities—Branch and Warehouse in San Francisco

Airline Rate War Whips Up the Competition With Railroads

New cut-rate airlines plunge railroads and established airlines into deep chill with fares low enough to threaten railroad rates

SAN FRANCISCO—When you can fly between San Francisco and Los Angeles on a well-recognized line for a fare practically the same as those charged by the railroads on their fast de luxe daylight runs; when the Southern Pacific coincidentally switches one of its famed "Daylights" to a night coach run; and when air cargo rights to serve the entire world out of Oakland are being applied for, then it may well be said that things are happening in aviation.

And when W. A. Patterson, president of United Air Lines, says that the Hawaiian pineapple and sugar growers have reached the frontier of profit on their industrial activity, and that the Islands are gradually being transformed from an industrial economy to a tourist paradise (with transportation to and from by airplane, of course), then you may become more convinced that things really *are* happening in aviation.

United is now putting on a national tour to promote this idea, including native hula dancers, troubadors, and the works, in de-luxe fashion. You can fly from San Francisco to Hawaii quicker than you can drive or railroad to Los Angeles. And New Yorkers can fly to Hawaii faster than they can railroad to Florida.

In view of these immediate events, the 10-year construction and improvement program outlined by the Bay Area Airport planning group, calling for 22 new airport facilities by 1960 in the San Francisco Bay area, does not seem out of line.

It was all precipitated a few weeks back, when a young upstart called California Central Airlines put in a $9.95 coach plane rate between San Francisco and Los Angeles. Up to that time United Airlines had been charging $21.05 for that flight; Western Airlines, $20; while Southwest Airlines, with coach planes and more stops (and consequently slower trips) had a one-way rate of $19.15. On the Southern Pacific's Daylights, the one way rate between the two cities is $8.67, round trip $15.53, while the Santa Fe's less advertised but equally fast Golden Gate (which moves passengers between Bakersfield and Los Angeles by bus) hauls for $7.13 one way and $12.88 round trip.

To meet this California Central competition, Western Air Lines blossomed out with a separate company carrying a minutely different name, but using Western planes and personnel, and cut the rate to $9.95 also. Since then Western has applied to CAB for authority to provide coach service to the Pacific Northwest, which would be highly competitive to the Southern Pacific's new Portland Daylight, on which the one-way fare to Portland is $12.

It is generally supposed that Western's rate-cutting move was intended to be a temporary move to drive California Central out of business, but whether this can be accomplished without at the same time ruining the de luxe $21 service is a matter of considerable speculation.

Not all of the regular flights of United and Western are profitable, because it takes a 76 per cent load factor to break even. On a $9.95 fare, there probably will be little difficulty in getting the 76 per cent load factor, but whether operating costs can be reduced to offset the lower rate remains to be seen.

The cargo rights from Oakland are being applied for by Transocean Air Lines, largest contract carrier of passengers in the world, who have made a big thing out of hauling fishermen to Alaska, construction crews to Guam and other distant points, D-P's out of Europe. Through their subsidiary, Aviation Equipment and Maintenance Co., they have also developed a big airplane overhaul business, growing out of servicing Berlin airlift planes at the Oakland Airport.

Transocean recently transported a Hiller helicopter to Paris in two days at a cost of about $1 a pound.

In the program for airport development, the largest new facility is the Berkeley-Richmond Airport proposed for development as a Class 3 facility by 1960 on the Bay tidelands off the Berkeley shore. This recommendation calls for immediate steps to build a Class 2 field at this site to meet the present needs of private flying.

Treasure Island is also the target for No. 1 consideration with allocation of space to be requested at the northern end of the Island for a Class I civic airport to serve the owners of private aircraft.

A similar request for private aircraft facilities calls for surveys of the tidelands south of Hunters Point to lead to possible construction of a Class 1 airport. This is the only available site for such an airport in the City of San Francisco.

Heliports are recommended for study and development, with loop and shuttle routes linking centers of mail receipts and deliveries and air transport terminals. Specific locations suggested for development as heliports are the roof of the Rincon Post Office; a roof site nearer San Francisco's downtown district and hotel center; and the waterfront, near the Ferry Building.

Airline bus terminals are recommended for location at central downtown points in major Bay cities, with consideration to be given to eventual passenger shuttle service, plus mail and cargo delivery by helicopter.

Remember These OUTSTANDING ADVANTAGES

The large drive, at the right, transmits 1400 h. p. at a lineal speed of 2350 ft. per minute. Links are 2½ in. pitch, chain is 30 in. wide on 9 ft. 4½ in. centers.

of LINK-BELT *Silverstreak* SILENT CHAIN DRIVES

Full production at rated capacity results from eliminating slip in power transmission. With Link-Belt Silverstreak silent chain drives, slip is impossible. Every revolution of the motor is transmitted to the driven machine. Losses due to slippage are eliminated and output is increased. Yet Link-Belt Silverstreak silent chain possesses sufficient flexibility to absorb shock. Even on short centers, it runs slack which minimizes friction and wear. Moisture, temperature, age or periods of idleness have no effect on these all-steel precision-built drives. For utmost efficiency and economy, choose Link-Belt Silverstreak silent chain drives.

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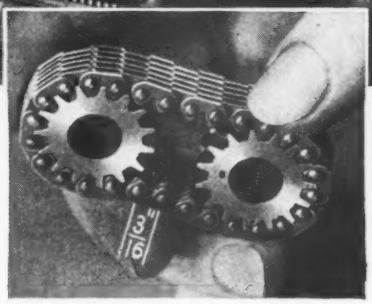
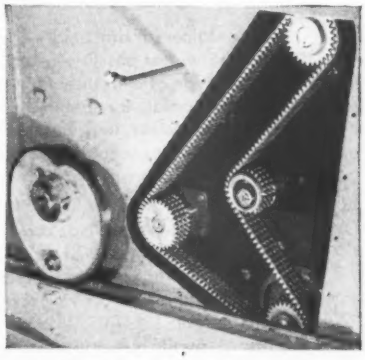


Smallest Link-Belt Silverstreak silent chain is 3/8 inch pitch. It has been developed for positive, flexible, quiet, high-speed power transmission at fractional h.p.



Duplex type can be flexed to run on either side for reverse rotation of any shaft.

• • •

Link-Belt Industrial Standard Silent chain drives, chain and sprockets, ½ to 50 h.p. are available from stock at Link-Belt Distributors or Factory Branch Stores in all principal cities. Easy selection tables given in Book 2125-A. Ask for your copy today.

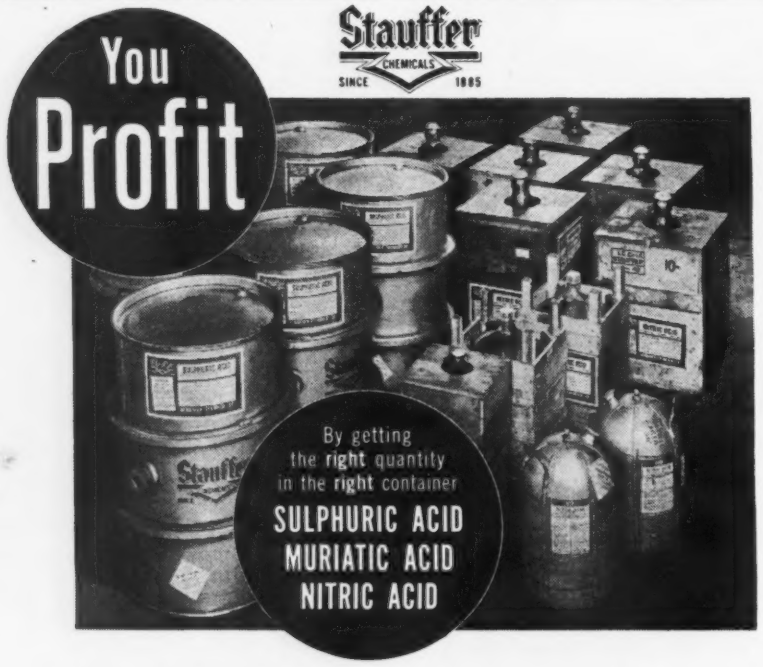
Idaho Crops Saved by Airplanes

In an entirely new application of personal aircraft to ranch work, six airplanes were used this season to save a whole wheat crop from frost and freeze destruction in the Fairfield Valley of Idaho.

Pilots of the single engine Ryan Navions flew about thirty feet off the ground, making repeated passes over the strands of grain, at 75 miles per hour. With flaps lowered, they so stirred up the chill early morning air that its moisture never had a chance to condense into frost on the wheat.

Success in this project prompted the pilots to apply the same technique to preventing rain spoilage of cherries. When a cherry nears maturity, rain will frequently fill the recession where the stem is attached. A rain drop will also hold to the bottom tip. Thus, the cherry absorbs water, causing its skin to split. Mold and spoilage result.

As a solution, the planes are flown close to the trees immediately after each shower. Using about 3/4 flap, they give the surrounding air a strong downwashed churning which knocks the rain drops off the cherries quickly and thoroughly.



"Any container for any acid"—Stauffer now can offer the widest possible selection of the most modern type of containers for the delivery of industrial acids. By specifying the type and size of container that best suits your needs you can *profit* by cutting down on waste materials, greater ease of handling, and by keeping a minimum quantity of material in inventory.

Leading the Stauffer "package parade" is the scientifically designed Stauffer stainless steel drum, which features handholds on side and bottom, engineered pouring spout, and top air vent. This drum for Nitric Acid, with these special features, available *only* through Stauffer.

Specialists in the manufacture of quality-controlled acids, specialists in obtaining the finest possible containers for these acids, the Stauffer Chemical Company offers you the finest acids in the widest selection of containers.

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Tank trucks
Tank cars

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Savings of 50% and more in materials handling labor and time may be yours, too, with the aid of WELD-BILT Pallet Trucks!

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Tel. Plymouth 4-3800

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Erwin C. Rohr, 600 - 16th St.

SEATTLE, WASHINGTON
Air-Mack Equipment Co.
614 Elliott Ave., West

PORTLAND, OREGON
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SALT LAKE CITY, UTAH
Arnold Machinery Co., Inc.
153 W. Second South St.

WEST BEND EQUIPMENT CORPORATION
MATERIALS HANDLING ENGINEERS
307 Water St. WEST BEND, WIS.

The finish of television? In a way, yes. For every television set has — inside and out — product finishes which make it handsomer, less expensive, better. And this full-color advertisement, the 6th in a series, will help make some thirty-two million Americans more "finish conscious."

The better the finish, the better the buy!

This is the slogan now being used to remind your customers that a good buy starts with a good finish.

And arresting advertisements like the one above, in four of the nation's top magazines* point out that a better finish means more beauty, longer life for every piece of furniture, every appliance used in the home, the school, the office.

More beauty and greater durability for everything from diaper pins to caskets.

And these advertisements mean that thirty-two million Americans (including those who buy your products) are going to take a closer look at the finish in the future.

Are you sure that you are using the best, the most durable, *most saleable* finish on *your* products? It's always wise to START YOUR BUYING WITH THE FINISH IN MIND!

*See *Time*, September 19, 1949
Country Gentleman, September, 1949
Better Homes and Gardens, September, 1949
The Saturday Evening Post, August 13, 1949

NATIONAL PAINT, VARNISH AND LACQUER ASSOCIATION, INC., WASHINGTON, D. C.

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Upturn in Lumber Market Makes Economic Sun Shine on Northwest

Business in general in this area seems to be slowly picking up; ICC freight rate decision deemed a boon to Western shippers.

PORTLAND—There was an optimistic note in the last month's Pacific Northwest business and industrial reports.

The end of Kaiser's ship repairing activities on Swan Island in Portland, dying trickle of the company's war-time mammoth shipbuilding activities in the Portland-Vancouver area, made the headlines but actually was the finish of a wartime era that already was ended. All but a few shipyard workmen have long been elsewhere in Oregon and Washington industry.

Many of them however, were out of work at the beginning of the third quarter, but now a majority are back on the job following the resumption of lumber activities, seasonal food processing and a general upswing in industry.

The furniture manufacturers had a bad case of summer doldrums (Dornbecher reported a $228,545 net loss for the first six months) but began hiring back their laid-off workers by the middle of the third quarter.

In Portland, a meeting of hardware dealers from Oregon, Washington, and Idaho added one of the brighter spots to the business and industrial picture. The fall dealer meeting of the Northwest Wholesale Hardware Company, owned cooperatively by some 300 Pacific Northwest merchants, brought a rush of buying that was unexpected even by the optimists.

Grass roots merchants, as well as those in metropolitan areas, were down in inventory and their customers are continuing to buy as much if not more than during the last three months.

The orders for various types of hard goods, much of it manufactured on the Pacific Coast, indicated a general assumption that fall and holiday buying by consumers was going to be back on schedule.

Highlight of the whole Pacific Northwest, of course, was the upturn in the lumber market, starting with a general $2-a-thousand-feet increase in Midwest Douglas fir wholesale prices early in August. It followed closely on the heels of the July vacation shutdowns of mills generally—some staying closed longer than was necessary for contract vacations.

Resumption of mills, now working on a fair order backlog that for Douglas fir is 105 million feet ahead of production in the third quarter, accounted for a major part of the fall increase in Oregon's non-agricultural employment.

The rail car situation carries both a blessing and a headache for Western Oregon lumbermen. Their usual fall car shortage developed in August and appeared well on the way toward continuing through September. Some mills with 30 cars a day on order were getting two or three—isolated examples but just a few among many forced to store instead of ship.

With earnings of the nation's railways dropping substantially, along with the quotes on their income bonds, the rails have been cancelling orders for new cars while still retiring old units at unreduced speed. This has the lumbermen worried about prospects for next year when harvest and lumber shipping again conflict.

On the bright side, the recent ICC freight rate decision was deemed a boon to Western shippers, among which lumbermen loom large.

The rates on lumber were pushed up 8 per cent in the West and 9 per cent from the West to the East and South. But they went up 10 per cent from the South to the East and within the South.

This, the West Coast Lumbermen's Association points out, will help make up the disparity between shipping costs of the South and the West.

There were Pacific Northwest industrial layoffs last winter because of the power shortage. Aluminum was worst hit.

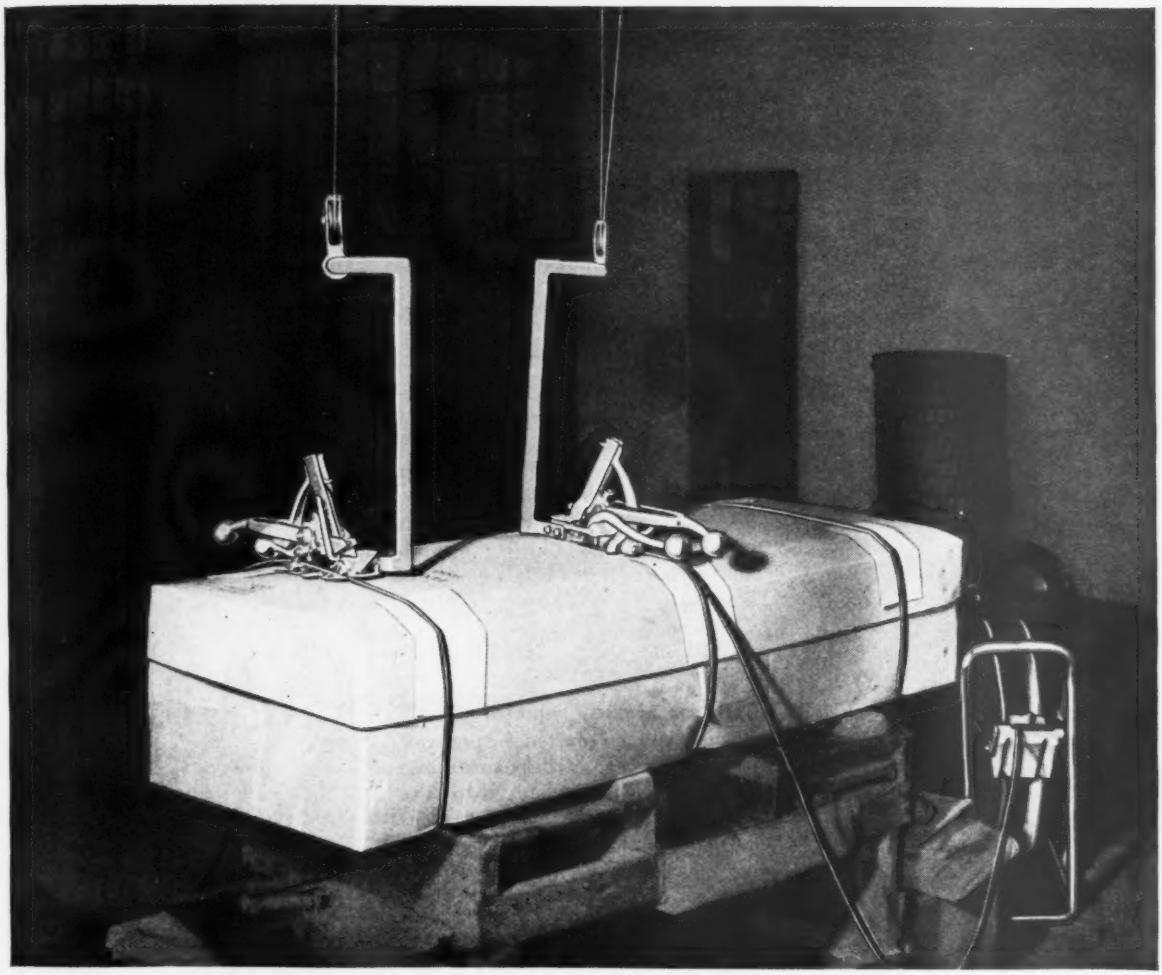
Now Bonneville administration officials say there may be no need for a brownout this winter "if we get a break in the weather."

Five Oregon and Washington private electric companies have signed purchase contracts with the British Columbia Electric Company to bring 30,000 kilowatts into the Pacific Northwest to help during peak load periods. Bonneville is cooperating by helping shunt the power via the public-private Northwest power pool into shortage areas. Added to that will be doubled capacity of Pacific Power & Light's big Merwin dam in southern Washington by the time the winter peak load season arrives.

All this is but a drop in the bucket against the region's power needs, but it and adequate stream flow through hydro-electric plants, plus an absence of dark, stormy days, may pull the region through without too much damage.

In the meantime, the Portland Chamber of Commerce and the Bonneville administration both say they have "a large number" of industrial prospects for the Columbia basin region "if and when the power supply becomes adequate."

McNary Dam already is a third of the way across the Columbia River at Umatilla and in another four years will be helping meet that need.



Stanley Steel Strapping Solves Tough Packaging Problem

The Hettrick Mfg. Co.'s Goshen, Indiana plant had a problem packing their porch and lawn furniture. Stanley recommended the speedy Ace Strapping Tool—with this overhead installation to make tool readily available at strapping point.

This way Hettrick saves time and labor—gets a stronger, better, safer package. See how the Stanley Steel Strapping System can cut your shipping costs. The Stanley Works, Steel Strapping Division, 234 Lake Street, New Britain, Connecticut.

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For Your Convenience . . .

Use this postage-paid card to obtain further information on products mentioned on these two pages and on literature listed on the following page . . .

***Items evaluated by Western Industry's technical advisors on basis of information supplied by producer.**

1030-M

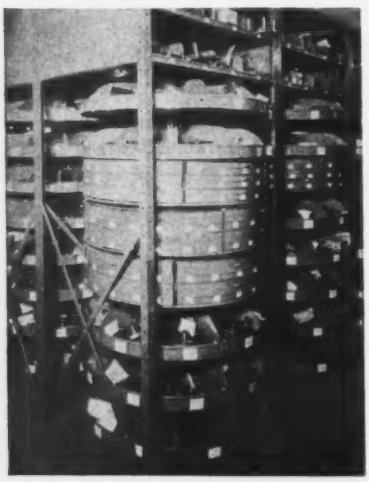
Vertical Drum Lifter

Open and closed steel drums can now be handled in the vertical position, by crane or hoist, through the use of a new vertical drum lifter being manufactured by *Palmer-Shile Company, Detroit, Mich.* The new lifters are of all-steel construction with heavily welded chain.

1031-M

Rotating Bin For Parts, Tools

Rotabins are circular steel storage bins which contain rotating shelves for storage of parts and tools, making these easily accessible when needed. The bins, housed in their own heavy steel frame, save on floor space, and also cut down time consumed by plant personnel in extracting working tools. *The Frick-Gallagher Manufacturing Co., Philadelphia, Penna.*



1032-M

Lathe Collet Chuck Has New Design

The newly designed Jacobs Spindle Nose Lathe Collet features synthetic rubber rather than steel. Manufacturers claim new design makes for much higher degree of accuracy, with less runout at the nose and at points several inches from the nose, greater gripping power and greater working facility, due to the ease with which the special impact mechanism tightens or loosens the work in the chuck as needed. *The Jacobs Manufacturing Co., West Hartford, Conn.*

1033-M

Suitcase Movie Projector

The need for a small movie projector which could be packed into a suitcase for use in individual and group sales work, job training and labor relations led to the development of the model being put out by *Technical Service, Inc., Plymouth, Mich.* The unit weighs only 40 lbs. complete with integral screen, magazine, amplifier and speaker.

1034-M

New Mesh Conveyor

The Leeds Electric & Manufacturing Co., Hartford, Connecticut, are now making a powered conveyor out of wire mesh which is designed to travel around almost any desired curve. It may be used in conjunction with other flat conveyors, or entire conveyor, including straight and curved runs, may be continuous.

1035-M

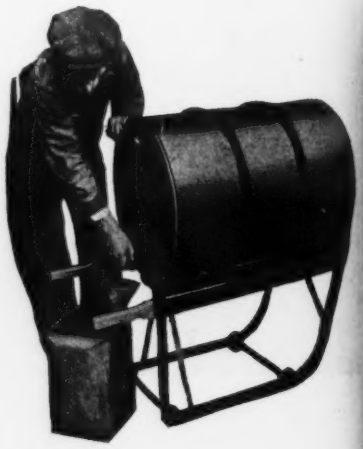
Serrated Rivet For Hard Woods, Soft Metals

When Cherry Rivets are driven into hard woods, their serrated shanks provide a tight, permanent joint; used in soft metal, they eliminate tapping and special inserts often needed with other fastening. Manufacturers claim the design of the annular serrations provides a stronger "bite" into the material, making for much higher pull-out resistance. *Cherry Rivet Company, Los Angeles, Calif.*

1036-M

One-Man Barrel Racker

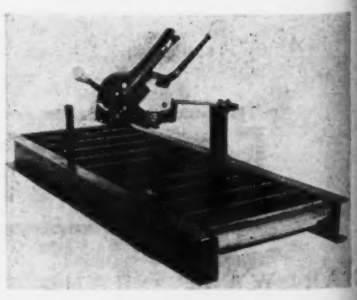
The "Wizard" barrel racker, a steel-frame device with runners on the front like a sleigh and rollers on top and bottom, enables a man to set it in an upright position, hook a barrel onto it, easily raise stand and barrel to horizontal position, making a solid rack for barrel to stand on while it is being drained. It is made by *Modern Equipment Co., Ohama, Nebraska.*



1037-M

Packaging Speeded With Strapping Unit

The Acme Conveyor Strapping Unit, which comes in different models, consists basically of a roller section to which has been fastened a rigid mount and quick-change bracket for the strapping tool. The unit provides for the quick steel-strapping of large and small bundles on the production line. *Acme Steel Company, Chicago, Illinois.*



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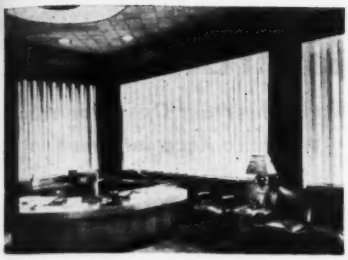
1038-M



Vertical Louvers For Large Windows

Vertical Jalousies developed by the *Lemlar Manufacturing Company, Gardena, California,* provide a new type of light control for large window areas, are made of aluminum and mounted on ball bearings for easy manipulation. Their vertical lines lend themselves well to modern architects' plant designs.

1039-M

*Flat Stem Magnetic Thermometer

Why industrial thermometers have never before been flattened (to our knowledge, at least) is a scientific mystery. *W. C. Dillon Co., Chicago,* has done not only that, but they have included a magnet as well, to enlarge its uses. Electric flat irons, griddles, transformers, engine blocks, air ducts, exhaust ports, etc., can be checked with this device. The large flat area quickly gathers and retains heat, actually covering the heat area like a blanket.

Comes in three dial sizes, with stems from three inches up to 42, and available in either F or C scale. Acid and rust resistant. Can be screwed into (after removing magnet) tanks, kettles, steam lines, etc., and will withstand pressure of 3476 lbs. p.s.i. Accurate to within 1 per cent of full scale reading.

1040-M

Multi-Purpose Magnet

New G-S Magnetic Probe is the size of a fountain pen; point of magnet is extended or retracted from bakelite case by turning end-knob, the strength of the magnet being controlled by amount of extension. It is designed to remove steel or iron particles from plant areas where such foreign matter is harmful or in the plant first aid station for removal of steel splinters. *General Scientific Equipment Co., Philadelphia, Penn.*

1041-M

*Micro-Switch Centrifugal Governor

Here's a switch that can save industry many dollars and headaches. It is designed to turn off motor, engine, or other electrically-energized equipment when a pre-determined speed limit has been exceeded. Made by *Pierce Governor Co., Anderson, Indiana.* Switch must be reset manually before motor can be restarted; thus, equipment is fully protected until trouble is eliminated. Excellent switch for use on motor pump operating a liquid circulation system. Leakage would cause increased motor speed, and immediately shutdown until controlled.

1042-M

Stable Graphite Film Applied to Any Surface

Means of applying a stable graphite film .00015" to .0005" thick to practically any surface is announced by the *Electrofilm Corp., North Hollywood, Calif.* Process is applied by spray or dip. No plating is required although graphite film can be applied over plated parts. Process will be licensed to manufacturers or applied by Electrofilm Corp.

1043-M

*Low Power Lever Switch

Lever switches of this general type are turned out in immense quantities by many manufacturers. Occasionally, we run across such an item which appears to have superior qualities, meriting its recommendation. This is an example.

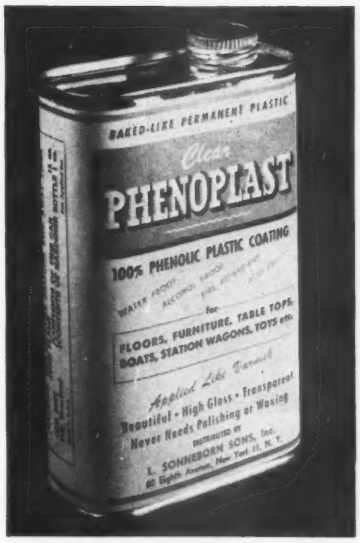
Simple in design, neat, small, and well made. Furnished in standard circuits, in both two and three-position actuators, either type locking or non-locking. Fine silver contacts rated at three amps, 120 volts A.C. Larger silver contacts for higher currents, and palladium contacts for low current. Known as "Lev-R" Switch, and manufactured by *Switchcraft, Inc., Chicago.*

1044-M

Instrument to Measure Thickness Of Non-Magnetic Coatings On Steel or Iron

Known as Lea Lectromag, this simple, durable instrument is capable of measuring coatings from .0002" to .008" with a plus or minus 10 per cent accuracy for thickness of .0001", and over, and a plus or minus 15 per cent accuracy for thicknesses under .001". Only 110 volt, 60 cycle AC. Manufactured by *Lea Manufacturing Co., Waterbury, Conn.*

1045-M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PHENOPLAST
100% PHENOLIC PLASTIC COATING
FLOORS, FURNITURE, TABLE TOPS, BOATS, STATION WAGONS, TOYS etc.
Applied Like Enamel
Beautiful • High Gloss • Transparent
Never Needs Polishing or Waxing
L. SONNEBORN SONS, Inc.

New Surface Finish Is Transparent, Tough, Flexible

A 100 per cent phenolic-plastic finish, known as Phenoplast and distributed by *L. Sonneborn Sons, Inc., New York City,* has been introduced. It can be brushed, sprayed, dipped. Quick drying. Tough and hard, abrasion-resistant. Flexible. Withstands wide temperature ranges. Transparent, not affected by sunlight. Can be painted over. Not affected by most acids and chemical solvents, including gasoline, oils, alkalies, salt spray, and brines. Surfaces so finished are practically waterproof.

1046-M

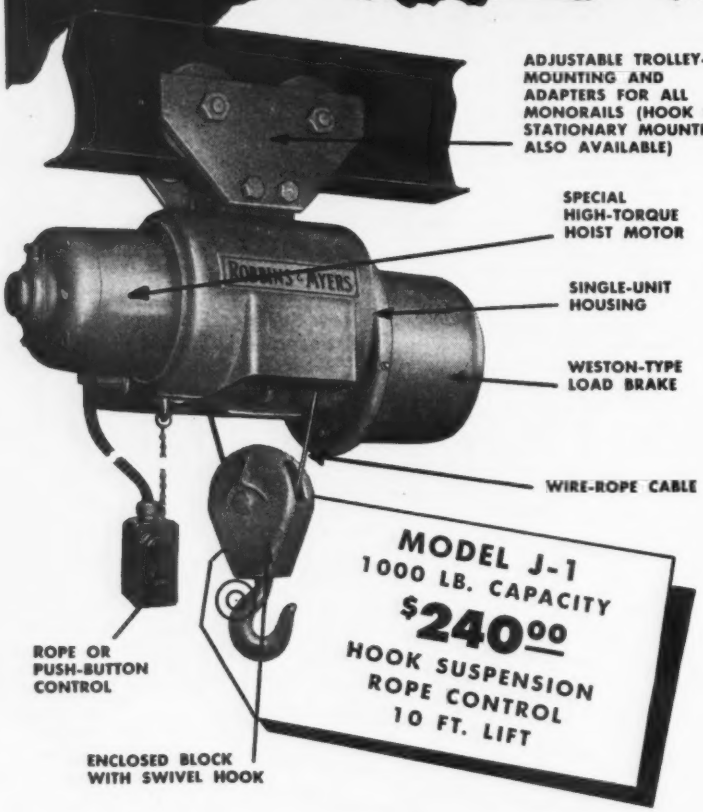
Tote 'Em Table

The Tote'em Table being made by *Alhambra Products Company, Alhambra, Calif.,* is a three-tiered moveable table made of 16 and 18 gauge sheet steel. Table is 33 inches high, comes in deep green enamel finish, and is designed to move tools, supplies around the plant, or for stock room use.

NEW! LOW-PRICED!

ROBBINS & MYERS

Wire Rope ELECTRIC HOIST



You asked for a low-priced Robbins & Myers electric hoist . . . here it is! Quality-engineered and manufactured by the experienced men who make much heavier R & M hoists, this new "J" hoist will end a lot more costly, back-breaking lifting, give skilled labor more time to use their skills.

Lug, hook or trolley mounting . . . adaptable to 7 different beam sizes . . . the reliable "J" hoist is versatile, easy to operate. Little headroom is required. High-torque motor tailored to your exact needs. Push-button control for accurate spotting. Single-unit housing assures positive alignment. This hoist is ruggedly built; requires little maintenance. Sizes 1/4, 1/2 and 1 ton.

(WRITE FOR BULLETIN WI-451)

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Helpful Literature

For the Plant Operator Who Wants to Keep Informed

2619-L

"Deterioration or Breakdown of Steels in Service" lists the ways in which steels break down in use, both internally and externally. *Tempil Corporation, New York.*

2620-L

For Testing Radio Equipment—*U. S. Department of Commerce* is offering all necessary information to construct a laboratory model "standard noise generator" for simulation of certain types of regular interference in the testing of radio equipment. It is useable from below .150 megacycles to beyond 600 megacycles. Pulses can be generated at various rates per second, or on a random basis. Standard 115 volt AC power is used.

PB 97415, Design and Development of a Laboratory Model Standard Noise Generator, 168 pages, including photos, diagrams, drawings, sells for $6.25 in microfilm form, $21.25 in photostat. Address orders to Library of Congress, Photoduplication Service, Publication Board Project, Washington 25, D.C., accompanied by check or money order payable to the Librarian of Congress.

2621-L

Welding Accessories Catalog—*Air Reduction Pacific Company,* manufacturers of industrial gases and welding equipment, have just published a new 15-page welding accessories catalog. Catalog covers both oxy-acetylene and electric arc accessories, is perforated for binder or loose leaf filing, and is illustrated with over 50 photographs.

2622-L

Maintenance Checking Chart — Just off the press is a 6-page chart listing a great many of the types of maintenance needs a plant or factory might have to keep in good repair, with blank spaces for checking off the items on the list and a listing of appropriate products to fit each particular building maintenance need. *United Laboratories, Inc., Cleveland, Ohio.*

2623-L

Design for Industrial Buildings—Principles underlying the Rigidsteel design for building construction, including special applications for industrial, municipal or commercial buildings — either conventional or eccentric in design—are covered in a new 8-page illustrated catalog issued by *McCloskey Company of Pittsburgh, Pittsburgh, Penna.*

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Protecting Metal Quality—*Morris P. Kirk & Son, Inc., Los Angeles,* have prepared what they call an "illustrated travelogue" through their metallurgical laboratories to acquaint the reader with the methods used in their various laboratories—the chemistry, radiographic testing, battery testing and others—to maintain the high quality of their metal products. The booklet describes and photographs the work done in these various departments.

READING GUIDE FOR WESTERN MANAGEMENT

A service for all management levels . . . current literature surveyed and appraised by the faculty of the School of Management, Golden Gate College

Labor in Postwar America

A symposium by Colston E. Warne, Chairman of Board of Editors, Remsen Press, New York, 1949, $10

The field of labor relations is so broad and complex that a comprehensive discussion of trends and developments throughout the American economy requires the contribution of opinion and observations by many observers whose diverse occupations and geographical locations make possible different points of view and consequently varying interpretations of the changing labor scene.

This symposium consists of thirty-two chapters written by thirty-five individuals, all of whom (with one exception) are members of college faculties or Federal departments. The academicians are principally professors of economics and the civil servants are mostly in the Department of Labor. The single exception is Fred H. Joiner, managing editor of two publications of the Bureau of National Affairs. The sole local representative is Clark Kerr, who contributed a chapter on "Employer Policies in Industrial Relations, 1945 to 1947."

The book is divided into five parts: Postwar Setting, Changes in American Labor Conditions, Developments in Labor Legislation, Labor Relations in Key Industries, and Labor Relations of Special Groups. There are four appendices, including a digest of the Taft-Hartley law and a roster of unions in the United States. As a thought-provoking volume containing the considered opinions of a number of individuals who are in positions to make meaningful observations of various aspects of the national labor picture, this work will be of interest to all those who are charged with the responsibility of thinking constructively on labor problems. With the exception previously noted, the biographies of the contributors listed in the volume do not show that any of them was ever employed either by a business organization or association, or a labor union. To pick a few names at random, Alman Roth, Alexander Heron and Robert Littler are local men who have shown themselves to be critical and competent observers, and across the nation there must be many labor relations executives, labor union officers, lawyers, legislators and others whose observations of labor trends are just as important as those of some of the contributors to this book. Perhaps the Institute of Labor Studies or some other group will someday delve beyond college faculties and government bureaus for qualified appraisal of labor in postwar America.

Reviewed by:
THEODORE B. LYMAN
Lecturer in Labor-Management Relations

The Proper Study of Mankind

By Stuart Chase, Harper & Brothers, New York, 1948, $3.50

Here is a stimulating book; a solid piece of encouragement in an age beset by conflict, frustrations, and insecurity.

There is no doubt that the destruction during the last war culminating in the atomic blast at Hiroshima shocked every thinking person into the realization that the fruits of further combat can only be the ultimate destruction of mankind, and that from now on man's chance for survival depends upon his ability to get along with his fellows.

Those who sought material with which to work discovered for themselves the truth of Alexander Pope's statement that the proper study of mankind is man—a very large order.

To begin the study of man one would have to investigate dozens of fields, read numerous books and, to sample current thinking, interview hundreds of authorities.

Fortunately because of life-long interest in the social sciences, Stuart Chase has undertaken such a study for the reader and has condensed the results of his investigations, his wide reading and extensive interviews into one volume: *The Proper Study of Mankind.*

Mr. Chase depicts his objective in terms of a cartoon which appeared in the St. Louis Post Dispatch. The cartoon shows a vast bomb leaning against a wall beside an equally tall and solid question mark . . . the bomb is labeled "How to kill everybody" and the other "How to live with everybody." "This study," says Mr. Chase, "is an attempt to appraise the question mark."

Material in the book is divided into three parts. In the first part the author presents "a conceptual framework," defining the scientific method itself, and applying it to both the natural and social science fields." Here he treats such areas as "the scientific method in action, varieties of social science, knowledge in the social sciences' storehouse."

The second part of the book provides "a sampling of the field, especially where the scientific method was in evidence and where results could be expected to stand up." In this section the author appraises some landmarks of progress in the field of social science, such as the Culture Concept, the Middletown Studies by the Lynds, and the Hawthorne experiment.

The significance of Part III, "Implications and Conclusions," can best be expressed in the author's words. He says:

> "What have we learned from our rough and ready survey across the front of the Social Sciences, in this the third year of the Atomic Age? For my part, the journey has given me courage. Knowledge is available or can be made available on a scale most of us are totally unaware of, to help solve many baffling problems in human relations."

Mr. Chase has written an excellent book. It deserves to be widely read.

Reviewed by:
HAROLD E. ATKINSON
Lecturer in Human Relations

Briefer Guides From The Management Library

The Hoover Commission Report

McGraw-Hill Book Co., New York, 1949, $3.75.

Here in convenient, one-volume form is the official report of the Hoover Commission, presenting the essence of the findings and all of the recommendations. Dissents, additional comments and minority views have been eliminated.

Middle Management

By Mary Cushing Niles. Harper & Bros., New York, 1949, $3.50.

A new-up-to-date edition of a standard work on the functions of the junior executive. It sets forth the special problems and opportunities of middle managers, and describes the procedures of organization, initiation, development, coordination and operation which are essential for competent performance in this area.

Improving the Efficiency of Packaging Production

American Management Association, New York, Packaging Series No. 30, 1949

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Cost Reduction in Materials Handling and Shipping

American Management Association, New York, Packaging Series No. 31, 1949

Includes: Handling factors to consider in container design. Problems of the receiver in intra-plant shipments. Savings with the disposable pallet. A panel session on packaging and packing for successful shipping.

Reviewed by:
BERNA M. CARLSON
College Librarian

"Government Plots Against Private Industry"-Seattle Businessmen

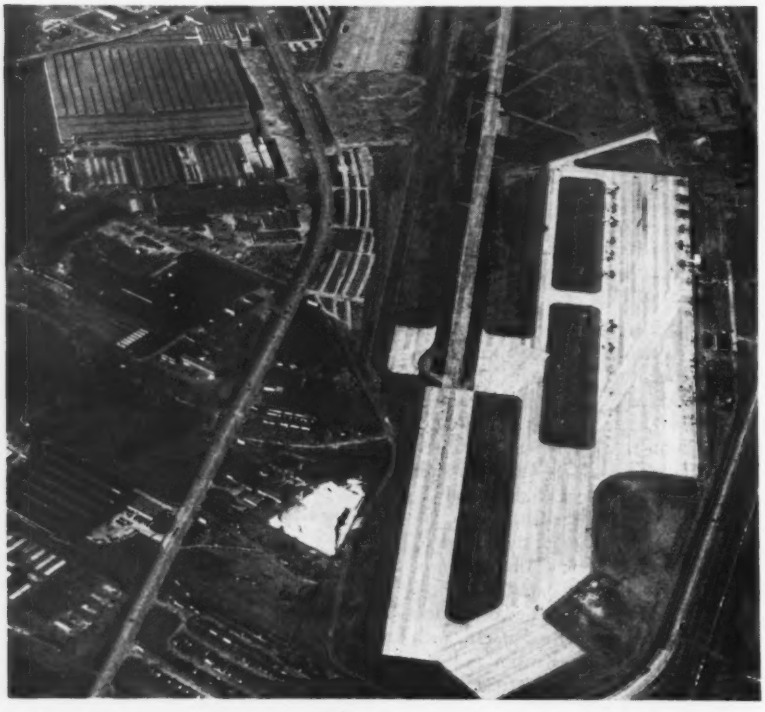
Air Force seeks to remove Boeing B-47 production to Wichita; Seattle industrialists scream against government in business.

SEATTLE.—Meek acceptance of the philosophy of West Coast "vulnerability" advanced by the Air Force means nothing less than widespread disintegration of Western industry. That is the militant position which, originating with Seattle business men, is rapidly spreading through the West, and which seems likely to embrace ultimately the Atlantic's industrial seaboard also.

What touched off this situation was a proposal by the Air Force to transfer all production of the new super-fast B-47 jet propelled bomber from the Boeing Airplane Company's big plant in Seattle to the government-owned plant operated by Boeing at Wichita, Kansas. Seattle touches the sea in the far Northwest corner of the United States, while Wichita is close to the geographical center of the country. Seattle, says the Air Force, is "vulnerable" to attack. Hence the proposed move.

This same Boeing B-47 Stratojet is being thrown in the face of the Air Force brass to dispute their philosophy. Capable of carrying a 20,000-pound bomb load, acknowledged as the fastest bomber in the country and "probably in the world," the Stratojet has flown across the country in a scant matter of three hours and 46 minutes. Specifically, from the Moses Lake field in central Washington to Andrews Field, Maryland. That was a flight at an average speed of 607.8 miles per hour.

• This aerial view of King County Airport, Seattle, shows the Boeing Aircraft Co. facilities in that area. Located on both sides of E. Marginal Way and running north from the bend in the road to Sixteenth Ave South (bridge, upper left in picture).



In a world of 600 m.p.h. bombers and 10,000 mile flights and atomic bombs what is vulnerable and what is not vulnerable? That is the question to which Western industrialists demand an answer! And they ask also, "Is a whole region to be abandoned, to be declared expendable, because the Air Force, or anybody else, says it is difficult to defend? Are we "outlanders?" Are we some distant colony and not some integral part of the nation?"

And the questions go on. If a bomber plant is vulnerable because of its West Coast location, then what about the vulnerability of other Pacific Coast aircraft factories—or Atlantic Coast for that matter? What about other industries of other great military importance on the Coast—the Navy Yards, the ship building plants, the aluminum plants, power dams, oil refineries, lumber mills, steel mills, machine shops?

In an answer which reveals that the Boeing removal incident is no mere local problem, Oregon's scrappy Governor Douglas McKay said:

"If Boeing in Seattle is vulnerable, then what protection is there for the people of not only Seattle but of the entire Pacific Coast? The Pacific Coast

(Continued on Page 72)

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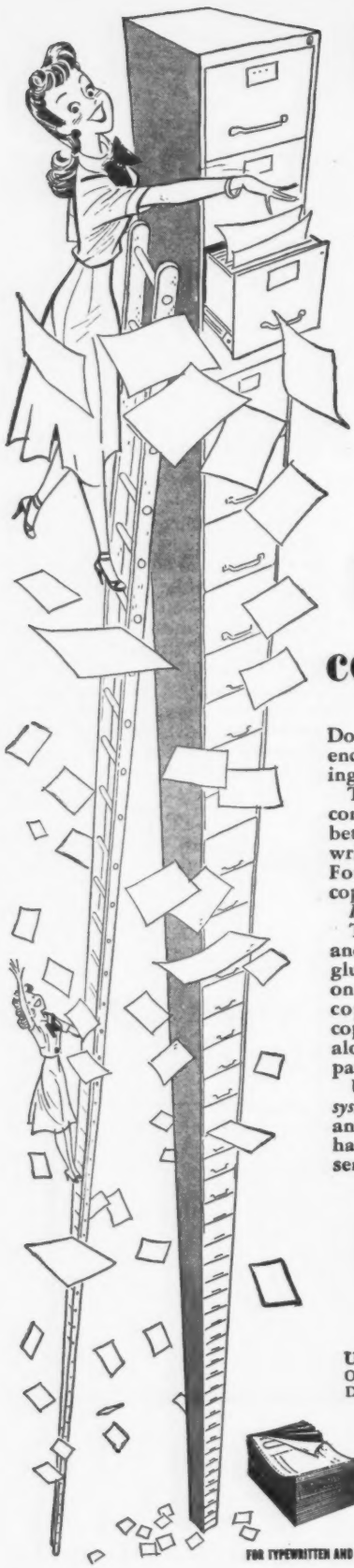

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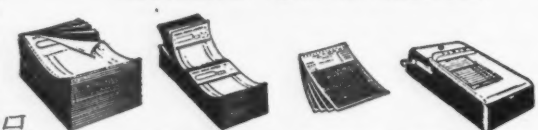

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SEATTLE REGIONAL REVIEW

Boeing Controversy

(Continued from Page 70)

has a population of a million more than the entire population of Canada. The Air Force statement implies it can't deliver them protection.

"This gesture against Boeing is far too serious in its ultimate implications to permit it to pass. The work of Pacific Coast defense plants is so thoroughly tied in with the general industrial pattern that to move one means the virtual destruction of the other."

Commenting that his family had lived in Oregon for 100 years and had no intention of moving now, Governor McKay added, significantly:

"This is a fight for the entire Pacific Coast,-and make no mistake about that. If the Air Force is succesful in shifting Boeing bomber manufacture to the Middle West it will mean the beginning of industrial decentralization of the entire Pacific Coast."

Reviewed in brief, here is the situation. Boeing in Seattle currently has about 25,000 in its work force. This is somewhat above normal because of efforts to catch up with production delayed by a strike last year. At present the only major military planes being built in Seattle are the C-97 and B-50 types. However, experimental B-47 Stratojets have been built in Seattle, but actual production is just beginning in Wichita. The Seattle plant has a skilled force already in being, whereas it is obvious from reports that recruitment in the Wichita area is involving difficulties. Of great significance is the fact that the big engineering staff developed by Boeing in its many years of operation, from whence has flowed the designs for and production techniques of successively successful B-17's, B-29's and others to the "last word" B-47 Stratojet, is in Seattle. Axiomatically, it can't be moved without very serious breakage.

Naturally, Seattle is alarmed by the prospect of losing a large part of one of its biggest and long established payrolls. Alarmed, yes, but more disgusted and angry, too, with being told that the idea is to abandon it to potential invaders as unworthy of the cost of defense.

The answer to that "defeatist" philosophy of the Air Force, as it is termed with even stronger language, is given thus by Northwest business and political leaders:

"If the Pacific Coast is weak in defense, strengthen the defense! Don't run away! The West is just as much a part of the United States as Kansas or any other state."

What's behind the proposed production shift? Is it a sincere and sound

strategic move for the sole purpose of putting a range of mountains and a thousand miles between bomber plant and frontier boundaries?

High ranking industrialists who have dug beneath the surface are blunt in their appraisals. They laugh off with scorn the vulnerability theory in this age of fast, far-flying heavy bombers. In essence, here is their analysis:

"This is a far reaching plot to take military production out of the hands of private industrial plants operated on a free enterprise principle and to place such production in government-owned plants and with the ultimate end of controlling, step by step, all phases of design, production, inspection and testing. It is a move stemming from the bottom up, rather from the top down, and motivated by a 'brass bureaucracy' centering around Wright field in Ohio, the procurement heart of the Air Force.

"It is a move having all the evil aspects of bureaucracy building through expansion of controls, motivated by strong desire to enhance personal prestige, position, job security and power. It is a movement to put government in business still deeper and will bring with it rigidities and inefficiencies that all too often attend government enterprise.

"The proposed Boeing production shift is only the 'guinea pig' case which, if allowed to materialize, will certainly lead to other production shifts to the 'less vulnerable' mid-continent of other West Coast aircraft plants, with the way then paved for shifting other industries deemed vital to defense."

Seattle does not intend to take it lying down.

Nor does Western industry intend to take it lying down, as indicated in the prompt and vigorous denunciation by the Oregon governor.

Here is the way the defense is shaping up.

Top-ranking Seattle industrialists have formed a fighting committee to do the steering. Popular support is being rallied in a large city-wide committee headed by Thomas J. Bannan, president of Western Gear Works, as active head. Mayor William Devin is titular honorary head, but a by no means inactive one. Governor Arthur B. Langlie likewise, in good fighting fettle, holds the honorary chairmanship of a state-wide committee; he promptly put the long distance telephone to work to outline the situation to and seek the support of neighboring governors. Joseph Drumheller, leading Spokane business man, is active head of the state-wide committee.

Fanning rapidly outward, the formation of an Alaska committee and an Oregon committee are already in mo-

(Continued on Page 74)

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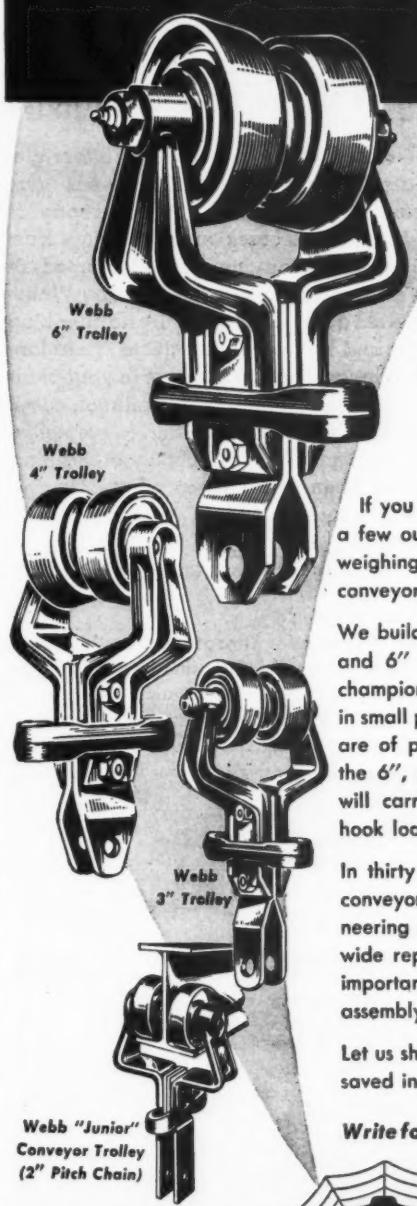

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SEATTLE REGIONAL REVIEW

(Continued from Page 73)

tion and united support of the 11 Western states will be pushed just as fast as organizational work can go forward. A "war chest" of from $75,000 to $100,000 is being raised by popular subscription through the Seattle committee to extend the campaign on a national basis. Boeing labor through the Aero Mechanics union has billboarded the city to arouse public support.

The Wichita plant, to which the Air Force "brass bureaucracy" would transfer the B-47 construction from "vulnerable" Seattle, is, with a very minor exception, a wholly owned government plant. That fact is not too clear to many not directly connected with the aircraft industry. It is but one of several large plants in the mid-continent region built by the government for aircraft production in World War II. The government still owns others of these besides Wichita. Production in the government-owned Wichita plant will be less bothersome to the Air Force; they will have more control; more power; over labor as well as other elements.

The question before the industrial West is obviously: "Do we want our production shifted into government-owned plants in the Middle West under the guise of West Coast vulnerability, or do we want to maintain a free economy with every part of the nation defended by all the people?"

Henry J. Kaiser, industrialist of ship building and construction fame, dropped in to Seattle in August and revealed that a survey was being made by his automobile company in the Puget Sound area looking toward possible establishment of an assembly plant nearby as part of an overall decentralization move designed to cut costs and aid in Western industrial development.

While here Kaiser took a crack at the Air Force for proposing removal of the Boeing production to the Middle West, saying that such a move would cause a permanent loss of invaluable "know how."

Three suits have been filed by dairy farmers in the Portland area, charging that gases released by the Clark County plant of the Aluminum Co. of America at Vancouver, Washington, have killed and injured vegetation and animals. Damages of $858,000 are asked. Similar complaints of pollution by other Northwest aluminum plants are heard from time to time and further actions are within the realm of conjecture.

New business calling for the rebuilding of 400 refrigerator cars for the Fruit Growers Express and Western Fruit Express has caused an upturn in operations of the Pacific Car & Foundry Co. at

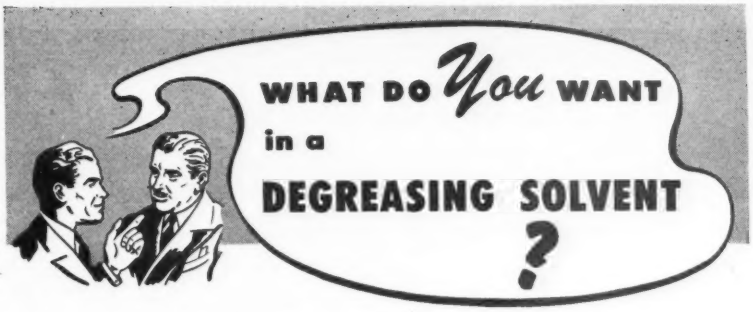
Renton, a small city lying about 15 miles south of Seattle proper. This is a $1,800,000 program and will hold a payroll of about 450 men in the plant that was active in the production of fighting tanks during the war and which supplies a good percentage of the equipment used by Western logging industries.

Looking north, renewed hopes for an ultimate rail link between Seattle and Alaska, long in the conjectural stage, are found in a congressional bill just reported on favorably by committee. The bill would provide for survey work, location, engineering and negotiations with Canada looking toward a rail link which would make use of the Pacific Great Eastern line which has about 347 miles of line now from a point about 40 miles north of Vancouver, B. C., to Quesnel and is now slowly building to a junction at Prince George. Proponents of the rail link point to its defense values in serving Alaska in the event of invasion by the Arctic route. The route has already been surveyed in detail by the U. S. Army Engineers.

Meantime, much government money continues to pour into Alaska under the general heading of defense, although there is widespread protest that the efforts fall far short of giving adequate protection to this outpost area of new strategic importance with the advent of the long-range bomber and air traffic.

Other government money is bolstering the Pacific Northwest in very important ways. Two great government dams are in the building on the Columbia River system and mammoth engineering works which open the arid Eastern and Central parts of Washington to irrigation and development are moving ahead rapidly. On top of this, the Atomic Energy Commission has revealed a continuation of current expansion of the great Hanford works with new construction in the making amounting to $84,000,000. About $18,000,000 of that amount will be spent during the balance of the current year. As of July, about 5000 construction workers were employed at Hanford. This force has been declining for a time, and may go still lower, but AEC Chairman David E. Lilienthal has now indicated that the employment trend is likely to be reversed from this point on.

Other government money is moving into ship repair and Puget Sound yards will participate. The urge now is to repair military-type auxiliary vessels in the Maritime Commission's reserve fleet. In this overall program, the "cut" of the Puget Sound yards will not be great, but shipping officials feel that even a minor program will be a great help in holding together the trained personnel available in the region.



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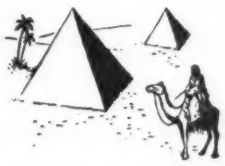

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Metal Mining Industry Needs a Revitalization; Seeks Subsidy

Mining industry, the backbone of Colorado economy, is on the rocks. Question is: shall it discontinue, or be subsidized?

DENVER. — With the well-oiled campaign to win Federal subsidies for metal mining steamrollering along merrily, the high country up and down the Continental Divide entered the autumn feeling pretty cocky.

Bumper crops that even exceeded 1948's record totals had filled the socks of some 65 per cent of the area's residents with plenty of spondulicks. The oil industry continued to look like it had moved in to stay. After lengthy sojourns in Pennsylvania, Texas and the Mid-Continent, not to mention California, and from the Mexican border to the Arctic Circle the search for petroleum had spread over the high plains country and into beds of long-forgotten seas hidden away between the mountain ranges.

The metal mining people had cause to clamor for a subsidy, in the palatable guise of a huge stockpile. With agriculture punch drunk from government-supported crops and plenty of other important industries sucking the mammary glands of the government, miners had a case and felt that the time had come to get their share. Uniting behind the O'Mahoney bill, the West's Senators and Congressmen threw everything they had into the fight for a huge stockpiling program. Some picturesque language was thrown in, too, including this from Colorado's Senator Ed Johnson:

Cry Wolf

"We have heard the cry of wolf for so long that we pay small attention when someone tells us that an industry is in deep distress.

"This time it is the real McCoy. The mining industry, which, from earliest days, has been the backbone of Colorado economy, is on the rocks.

"Unless something is done, almost all mining in the state will be discontinued. The United States has got to make up its mind whether we want to continue this industry or abandon it.

"If it be abandoned, the mines will cave and fill with water, which will require a tremendous dead expenditure if at any time, such as a war crisis, we attempt to revive them.

Shaky Defense

"Metals play a vital part in our national defenses. In fact, an adequate national defense is built on sand unless it provides for an adequate supply of metals ready to go into the war plants.

"We should develop our mineral resources now and build a tremendous stockpile to be used for any future emergency."

Nobody could deny the plain common sense in Senator Johnson's plea, nor the need for some sort of shot-in-the-arm to revitalize metal mining. It was a cinch that this problem would get attention from the Western States Democratic Conference in San Francisco.

The fact that Yugoslavia's dictator, Marshall Tito, asked, at this particular moment, for a $25,000,000 loan to develop his country's lead, zinc and copper mines played neatly into the hands of the Western metals block. The fact that we already are importing zinc from Tito's country, while American mines are virtually idle, doesn't look good to Congress — which is likely to grant Tito's request and then toss a bone to the West in the form of a nice stockpiling program.

In the welter of words flying back and forth, some of the most telling words described what happens to the 10 cents a pound price of zinc before it gets to the producer of the metal. As Lee Casey of the Rocky Mountain News pointed out:

"Zinc mined in the Lake County (Leadville) district is sent to one of two concentration mills in Leadville. The concentrate is freighted to Amarillo, Texas, for distillation at a cost of around $36 a ton. It then becomes zinc spelter. The price of spelter is fixed at St. Louis, as the price of lead is fixed at New York and that of copper in Connecticut. So the cost of a mythical trip to St. Louis is deducted from what zinc otherwise would bring to Amarillo. Instead of 10 cents a pound, the Leadville producer is lucky if his actual return is as much as 3½ cents.

They can't figure out if it is part of the mining industry or part of the petroleum industry, but whatever the shale oil industry is, don't underestimate its potential and don't sniff it off as something you'll bother to check up on ten or twenty years from now. You may be using its products in your own manufacturing processes within another five years. A lot of smart manufacturers are using test batches already.

Miracle Material

The amount of petroleum-like hydrocarbons awaiting recovery in the shale beds of Western Colorado in the vicinity of Rifle is too big a figure to interest anybody. Nobody believes it. Yet the process of getting this oil out of the rock that burns isn't complicated—the Swedes and the Irish and various other peoples have been extracting shale oil for years and making a good thing of it. But they didn't know the half of it. And the miracle raw material of the future may be shale oil.

"The right sort of federal assistance, possibly including tariff protection, would stimulate production at Silverton, Ouray and Gilman as well as Leadville. As Will Rogers once said, 'Let's try to help them, even if they aren't Armenians.'"

Building for New Era

Denver's good government has untangled one of the knots industrialists had struggled with in vain. The antiquated building code has totally strangled the use of modern materials within the city limits. It seemed that the interests who wrote the silly code in the first place were on their toes to keep anybody from changing it. Two generations of lumbermen had railed in vain against the code's stipulation that all houses must be "fireproof" in the sense they represent profitable patronage of the brick industry. The fact that Denver's dry climate is ideal for wood and that a good frame house will last for a hundred years didn't make any difference.

But now see what has happened.

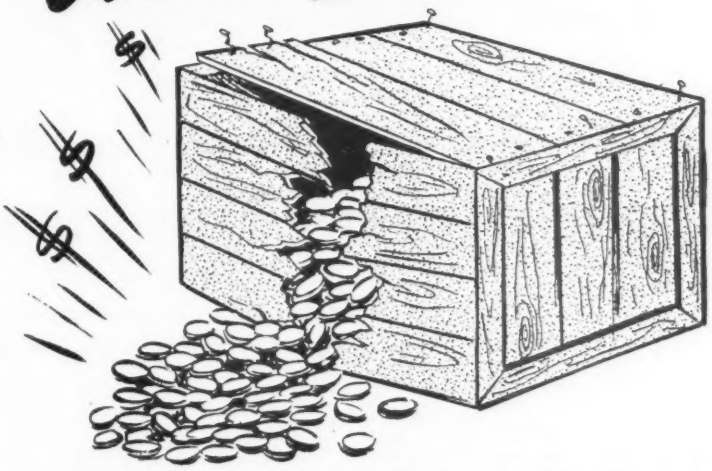
"If a wall of cheese would perform as well as a wall of brick, the cheese wall could be put up under Denver's new building code," says C. J. Conroy, a realtor and member of the commission which spent 18 months drafting the new code.

The new code is based on performance, strength and safety, rather than such specifications as "brick" and "Douglas fir." If a new material has the qualities required for good construction, it can be utilized. If a sheet steel warehouse will do the trick, it isn't necessary to build a brick warehouse—not any more, in Denver.

However, the whole job hasn't been done yet. The commission is having its troubles trying to modernize the portions of the building code that pertain to electric wiring, plumbing, heating, gas fitting and installation of elevators. Obviously, in this realm the builder runs into intrenched labor groups which have secured legal backing for practices that have some merit in quality and safety but often constitute needlessly expensive construction practices and the use of materials that are needlessly costly compared to satisfactory substitutes now available. But the progress made so far is encouraging and a few inroads have been made on even the electricians and plumbers.

Incidentally, anybody contemplating any construction would do well to remember that *designs must be approved by the board of examiners and appeals as complying with standards set in the code.* Rapid reports are promised, since Denver is trying to encourage building of any good type.

Could YOU be



LOSING PROFITS

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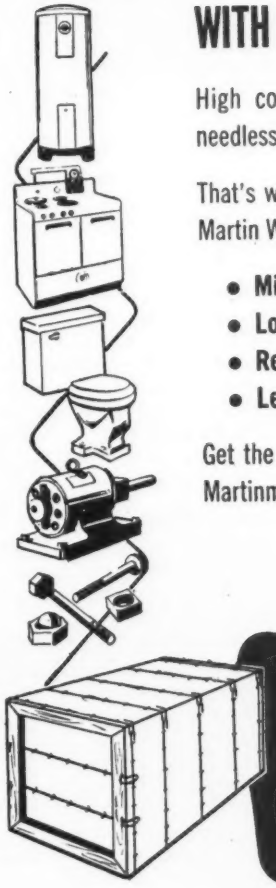

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Utah Advocates Federal Economy; Government Eliminates 1700 Jobs

And still Uncle Sam holds Utah record as number one employer; Weber River project is good lesson in political psychology.

SALT LAKE CITY—Utahns who have been clamoring for the federal government to reduce expenditures had a chance to demonstrate their sincerity or insincerity when the announcement of the cutback in military civilian employment reminded them of a fact that has been pushed into the background since the end of hostilities. That obscure fact is that the U.S. military is still the largest single employer of civilians in this area.

Healthy Reaction

The reaction was surprisingly courageous. No one rushed into the public prints to denounce the retrenchment. And a few hardy souls stepped forward to publicly applaud the action, which will wipe out approximately 1700 jobs in northern Utah. Those who expressed approval of the cutback included the governor, a U.S. senator and a chamber of commerce secretary.

Gov. J. Bracken Lee, who has deservedly acquired a reputation of saying what he thinks no matter how unpopular it might be among his constituents, expressed the opinion that both the nation and the state would benefit in the long-run from the personnel reduction. Senator Arthur V. Watkins (R., Utah) observed that Congress is demanding retrenchment and that the military should cooperate.

Ezra J. Fjeldsted, secretary of the Ogden Chamber of Commerce, was not exactly happy over the curtailment, for the military establishments are concentrated around Ogden. But he philosophically accepted the paring as inevitable and said it should serve as a prod to private industry to create new productive jobs to replace the shrinking military employment.

One consolation to the area in which the military establishments are located (Weber and Davis counties) is Congressional approval of the $69,500,000 Weber River reclamation project. Mr. Fjeldsted opined that this project will permit a development in those two counties, both agriculturally and industrially, that will boost income from $100,000,000 annually to $300,000,000 annually.

The prospective beneficiaries of that project are still a little puzzled as to just how they got it through Congress so quickly and without opposition. Up until a few months ago the sponsors and Reclamation Bureau people were thinking in terms of a few million at a time. But Senator Watkins made a hurried visit home to inform them that Congress was thinking in terms of large public works projects and that it would be easier to get approval for the entire project than for a unit costing a few million dollars. The sponsors changed the play, tried for a touchdown instead of a first down and scored without encountering a tackler.

Uncle Still First

Civilian employment at the four major military depots in the state at the time the cutback was announced was approximately 13,800, more than twice the number on the payroll of Geneva Steel Co., which is the state's largest single private employer. The reduction will eliminate 1700 of these jobs, leaving about 12,000. Thus the military will continue, until further large curtailments are made, to be the state's No. 1 employer.

The shrinkage in government jobs was accompanied by the closing of two private plants involving some 500 workers. The recently completed Ideal cement plant at Devil's Slide was shut down because of a lagging demand and accumulating unsold stocks. And the American Smelting & Refining Co. announced that it would shut down its Murray lead smelter October 1, for an indefinite period. Reports are that the plant will be permanently abandoned, inasmuch as it has not been able for years to get enough ores for continuous operation. It started operating in 1902.

Industrial Shift

Some of the 250 men let out by the shutdown will be absorbed at the company's $3,500,000 copper anode casting plant now under construction being jointly built by AS&R and Kennecott Copper Corp.

The nonferrous metals industry in this area, it is now apparent, will get by for the time being without a wage increase. But there will be no reduction in scales, as some of the operators have proposed. All agreements reached thus far call for a continuation of the old wage rates and there have been enough settlements on this basis to establish a pattern. Actually the operators had no expectation that they would be able to get the bargaining agents to agree to a cut. The proposal was advanced more as a defense against increases than as a serious bid to reduce wages.

But despite the fact that the mining industry is holding the wage line, the general pattern in the area is still moderately upward. AFL unions have been quietly winning increases in numerous industries, varying the amount with what the labor negotiators think the particular employer can or will pay. In some instances the increases have been so small that they constitute only a token victory for the workers but in other instances they have ranged from nine to 15 cents per hour.

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THE WEST ON ITS WAY

ALASKA

CANNERY FIRE—A $250,000 fire destroyed two waterfront fish canneries at Cordova recently.

NAVY AIR CONTRACT—U. S. Navy and Transocean Airlines have entered into contract for one year, whereby the airline will transport personnel and material by air between Seattle and points in the Aleutian chain.

NEW SHIP SERVICE TO ALASKA—Alaska Ship Lines, Inc., is a newly organized firm planning to operate the 2800 ton steamship Asa Lathrop between Seattle and Haines, to connect with truck service over the Alaska Highway. Alaska Freight Lines, a concern operating trucks between Seattle and Alaska, recently started tug-and-barge service between Haines and Prince Rupert.

200-TON PULP MILL—Meetings have been held in Sitka on the project of establishing a 200-ton dissolving pulp mill on the Medvetcha River delta, close to Sitka. Housing problem was a major subject of discussion. The Alaska Industrial Corp. has obtained 23 acres of land within Sitka city limits for the purpose of furnishing the basis of 100 to 200 units. The firm is trying to stimulate local interests in undertaking a development.

$70,000,000 PUBLIC WORKS PROGRAM—The U. S. Senate has approved a bill authorizing a $70,000,000 public works program to aid in settlement of Alaska.

COASTWISE ALASKA SHIP SERVICE — Coastwise Line has started a Puget Sound-to-Alaska steamship service with two ships, the Joel Chandler Harris and James Lick. They will operate from Long Beach and San Francisco to Seattle, and from there to Alaska.

PLACER TIN IN ALASKA — U. S. Bureau of Mines reports a finding of an appreciable amount of placer tin in Alaska. No lode tin of commercial grade has yet been found, but enough placer tin was located to warrant a government survey.

CONSTRUCTION CONTRACTS—Slater Construction Co., Fairbanks, has been awarded a $174,000 contract for a mess hall in Alaska. The Albuquerque District Corps of Engineers has contracted with Haddock Engineers, Ltd., of Oceanside, Calif., for Alaska troop housing and facilities amounting to $879,767.

ARIZONA

FREEZING, STORAGE PLANT SOLD — The Nogales freezing and storage plant has been sold to Louis Bilbao, a Nogales theatre operator. The plant, which processes seafood from the Gulf of California, employs about 100 persons during the winter season.

PERLITE PLANT EXPANDS—Western Perlite Corp., Phoenix, has bought the perlite processing facilities of Perlite Corp., also Phoenix. New equipment will be combined with parent firm's operations to increase volume production of concrete and plaster aggregate.

CALIFORNIA

HOT AIRCRAFT ENGINE—A new aircraft engine, XT-37-1, a Turbodyne developed at the Turbodyne Corp., a Northrop subsidiary, is believed by the Air Force to be the world's most powerful engine. Only two of them will be required to power the 100-ton B035 Flying Wing bomber, instead of the four piston engines now required.

SUGAR PURCHASE — California and Hawaiian Sugar Refining Corp. has purchased 10,000 tons of Cuban raw sugar at a reported price of $5.90 per hundred, to be processed in the Crockett, Calif., refinery.

AIR EXPRESS—Air Express International, Inc., with Western offices in San Francisco and Los Angeles, has been authorized by Civil Aeronautics Board to act as an air freight forwarder.

ALLIS-CHALMERS EXPANDS — Allis-Chalmers Manufacturing Co. soon will launch a $250,000 building expansion program at its Oxnard works. Major portion of the program will include a manufacturing building with 40,000 square feet, an office building, a foundry, and an experimental engineering building.

NEW AIRCRAFT MATERIAL—Narmco, Inc., San Diego, has invented and is manufacturing a "multiwaved" aluminum foil core which is used between two sheets of laminated fiberglass to make a sandwich type construction material for airplanes. Estimates have it that this material could have 30 per cent of an airplane's weight as well as 30 per cent of the plane's cost.

NEW INSTRUMENT LAB—Jack Aviation Corp., a new firm in San Diego, formed by William S. Jack, former president of Jack & Heintz Co., Cleveland, is building a precision instrument laboratory and factory at Solano Beach. Plans develop to take on 600 employees.

NAVY ELECTRONICS LAB—Construction has been started on the first unit of a Navy electronic laboratory at Point Loma. This first part of the building plan is costing $1,153,360 of the Navy's planned $5,000,000 program.

FOOD PROCESSING FIRM—Carrier Corporation, Syracuse, New York, has acquired C. E. Howard & Co., 9001 Rayo Ave., South Gate, and will manufacture stainless steel dairy and food processing equipment, evaporators, etc., under the name of C. E. Howard Corp.

NAME CHANGE—The corporate name of Leon Finch, Ltd., Los Angeles, has been changed to American-Marietta Company of Calif.

24,000,000 POUNDS OF PIGS—War Assets has agreed to accept from Permanente Metals—in lieu of cash to meet the down payment of $1,800,000 on the three plants Kaiser has just negotiated for, plus interest and rentals payable prior to June 30, 1950—24,000,000 lbs. of aluminum pig or ingot at prevailing market price, or a total of $3,840,000. The Munitions Board has classified aluminum pig as a strategic and critical material and in accordance with Congressional authorization, has advised War Assets to accept aluminum pig for national defense stockpiling.

AUTOMOBILE RADIATORS—Volume production of automobile radiators will soon be undertaken for the first time in California in order to supply Ford Motor Co.'s Western assembly plants. Modine Manufacturing Co., Racine, Wisc., has acquired a plant at Whittier, where it expects to furnish radiators to assembly lines at the Ford factories at Long Beach, and Richmond, Calif., and Dallas, Texas, and to the Lincoln-Mercury plant at Los Angeles. Initial production rate will be $3,000,000 annually.

CALO DOG FOOD EXPANDS—Calo Dog Food Co. is expanding into a new building at 1530 E. 12th St., Oakland. Warehouse and office space are included.

PACIFIC PUMPS EXPANDS—Industrial property at 5706 Bickett St., Huntington Park, has been sold to Pacific Pumps, Inc., of Dresser Industries, Inc. Property includes about two and one-half acres, improved with a plant containing about 52,000 sq. ft. In excess of $750,000 is involved.

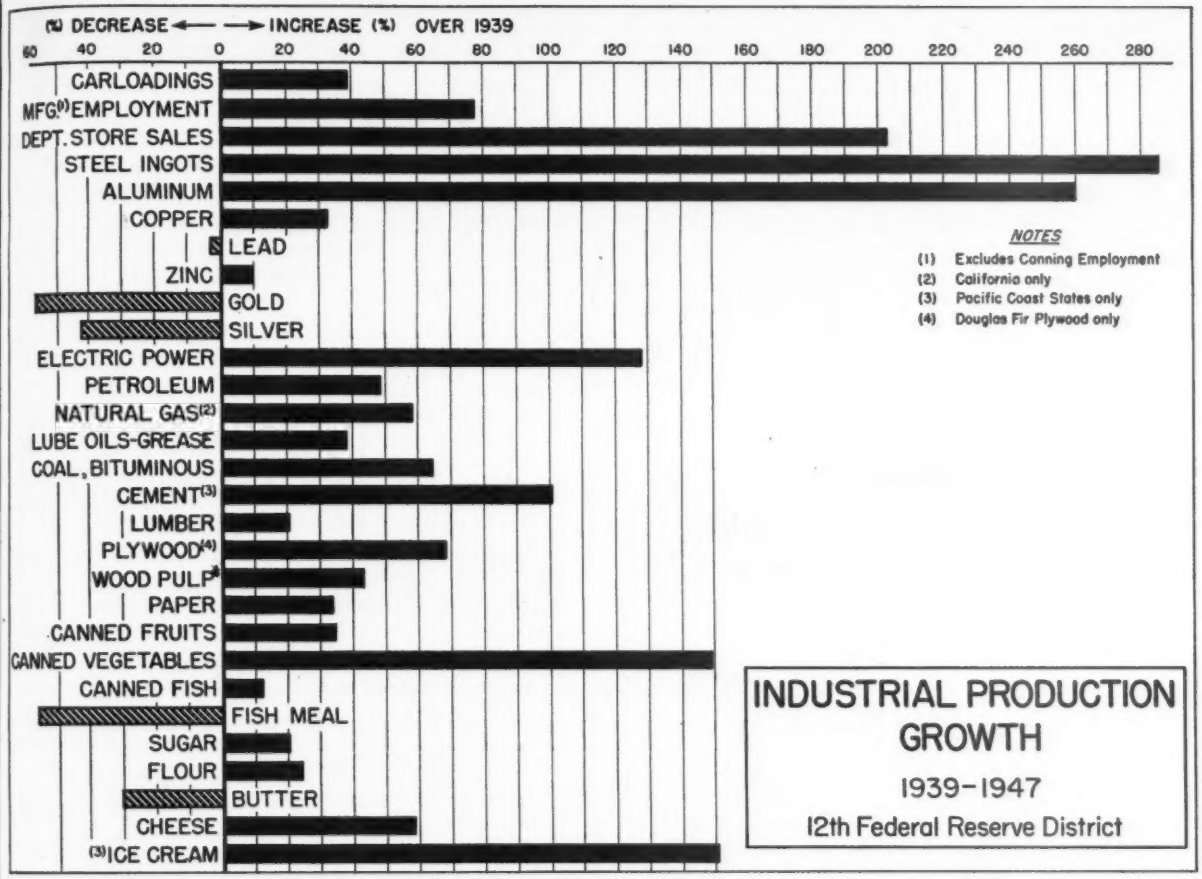
FREIGHT TRANSPORT BUYS—Freight Transport Co. has purchased the property of the Southern Counties Gas Co. on Atlantic and Violet streets, Los Angeles, comprising about two acres, improved with over 25,000 square feet of building area, at a price of $140,000. LeRoy D. Owen, industrial property specialist, handled these three transactions last listed.

CAL PRODUCTS CO. MOVES—Cal Products Co. has moved to 2132 Sacramento St., Los Angeles, where they will have 14,000 sq. ft. building in which to make soaps, detergents, and industrial cleaning compounds.

COLORADO

WAREHOUSE FIRE — Mathews Produce Company's Number 2 warehouse at Greeley suffered about $10,000 damage in a recent fire.

GOODYEAR WAREHOUSE IN DENVER — Goodyear Tire & Rubber Co. is expanding Denver facilities by construction of a new district office and warehouse at 1030 W. Third Ave. at a cost of about $150,000. It will serve as headquarters for the company's operations in Colorado and parts of New Mexico, South Dakota, Nebraska, and Wyoming.



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THE WEST ON ITS WAY

IDAHO

PULP PLANT PLANNED—Potlach Forests, Inc., is planning a pulp plant at Lewiston, at a cost in excess of $12,000,000. This, Idaho's first pulp mill, would employ about 300 persons and turn out initial pulp production of 230 tons per day.

UNION FORCES MINE SHUTDOWN—Bunker Hill & Sullivan Mining and Concentrating Co. has shut down completely because of a strike in an affiliated smelter, causing layoff of the firm's 1,000 employees.

TUNGSTEN MINE STARTS UP—Commercial production of tungsten has started at Ace Gold Mines, Inc. mine on the south fork of Clearwater River near Fall Creek. Felix C. Funke, Lewiston, is company secretary-treasurer.

POWER LINE HALTED—Federal Judge Chase A. Clark has issued a temporary restraining order on Idaho Power Co. to stop trespassing on public domain and cease construction of a $3,000,000 transmission line to connect the firm's generating facilities between Boise and American Falls, and the new dam now under construction at Bliss.

MONTANA

FERTILIZER FIRM INCORPORATED — Westates Agricultural Chemical Co., Inc., has filed articles of incorporation in Helena, with capitalization of $7,500,000. Incorporators are Everett Saltar, Ritzville, Wash.; Russell Manger, Livingston, Mont., and E. Murray Barrett, Spokane. The firm has announced plans to construct a fertilizer plant in Pasco, at an estimated cost of $16,000,000. The firm will manufacture ingredients for fertilizers, insecticides, fungicides, weed killers, gypsum wallboard, lath, plaster products, and cement products. The firm, whose home office is in White Sulphur Springs, has assumed control of Northwest Gypsum of Colfax, Wash., with deposits in Idaho. Planned operations in four states are: a $16,000,000 fertilizer (synthetic ammonia) plant in Pasco, Wash.; a $100,000 quarry and gypsum processing plant estimated at around $700,000 near White Sulphur Springs, and a $600,000 potash processing plant near Marysville, Utah. Instrumental in this venture is a thought expressed by L. Lore Watts, Spokane consulting engineer, who filed articles of incorporation: "The average annual consumption of fertilizer in the United States is nine pounds per acre; in Germany it is 90 pounds."

POULSON PULP PLANT—Idaho Montana Pulp & Paper Co. is to build a 100-ton-a-day capacity sulphate pulp mill to make newsprint on the corporation's mill property at Poulson.

NEW CORP.—South Butte Mining & Milling Co., Butte, recently incorporated in Montana, may issue $50,000 capital stock. Elden Emmett, Agnes Osenbrug, and Harold G. Burgess, all of Butte, are the incorporators.

COLUMBIA FALLS SAWMILL—A new sawmill, operated by Earl Wagner, has started up in Columbia Falls. The new mill employs about 30 men on two shifts. It is adjacent to the Rocky Mountain Lumber Co., just west of Columbia Falls.

ANACONDA COPPER ENLARGES FERTILIZER PLANT—Anaconda Copper Mining Co. has completed at Anaconda, Mont., a new contact sulphuric acid plant with rated capacity of 150 tons per day. Additional equipment has been installed in the present treble superphosphate plant to use this acid; result is that Anaconda's production of treble superphosphate will nearly double.

MISSOULA WAREHOUSE FIRE—A $250,000 fire destroyed a Missoula flour warehouse, grain elevator, feed mill, and coal dock recently. Montana Flour Mills, who lost about 55,000 bushels of grain in an 85-foot high elevator, and estimated their loss at "quite a bit over $100,000," will build a complete modern plant to replace their former property.

MERGER CREATES NEW OIL FIRM—Incorporation papers filed in Helena show that Richfield Oil Co.'s Helena headquarters absorbed the Northwest Development Co., Cheyenne, Wyoming, to form the Richland Oil Development Co. Offices are in Helena. Capitalization is at $1,500,000. Incorporators are Herbert R. Lewis, president; E. J. Preston, Salt Lake City, executive vice president; Dean Hole, Chicago, secretary-treasurer.

600,000 BUSHEL GRAIN ELEVATOR—Scheduled for completion on October 1 is a 600,000 bushel Farmers Union grain elevator on Sixth Street southwest. The unit will be 185 feet high.

THE WEST ON ITS WAY

NEVADA

MAGNESITE KILN—A 380-foot magnesite-processing kiln, nine and one-half feet in diameter, is planned for installation at the Basic Refractories plant at Gabbs. This kiln is expected to produce enough magnesite to meet all Basic Refractories demand west of the Mississippi River.

ANOTHER GABBS PROJECT—Standard Slag Co., Youngstown, Ohio, now owners of the rights to United States Brucite Corp., Luning, has constructed a new plant near Basic Magnesium's concentrator. Magnesite refractories and probably a special furnace cement are among products produced.

IMPORTANT MINE RULING—Nevada supreme court has ruled that mine tailings are classified as personal property and as such are not subject to inclusion upon filings of location.

NEW MEXICO

BIG TOWN FROM LITTLE ATOM GROWS—White Rock City, New Mexico, is today a complete city of 4,000 inhabitants. Last January it was nothing but the great open spaces with snow, pine trees, and mountain air. Built at a cost of $4,000,000 and in eight months, this town of more than 450 buildings, including stores, shops, school, police, fire station—has everything necessary to a complete community. Reason is that it is a suburb of Los Alamos, home town of the atomic bomb.

OREGON

HEAVY FIRE LOSSES—Recent fires in Oregon accounted for: Long-Bell mill at Vaughn, with $150,000 damage; Valley Furniture Co. at Creswell, with $38,000 damage; and Portable Mill at Sisters, with $50,000 damage.

ALCOHOL PLANT LEASED—An experimental industrial alcohol plant at Springfield has been leased by War Assets to Charles B. Hudson, Jr., William S. Hudson, and Mrs. W. E. Mitchell, all of Americus, Georgia, for a period of five years. Plan is to use the plant to determine whether production of industrial alcohol from wood waste is practicable. Estimated production of alcohol from wood waste is 4,000,000 gallons per year.

FOOD FACTORY FIRE—$35,000 damage was caused in a fire at Nu Vita foods factory, Portland, when a defective oil agitator belt flew off and allowed the agitator to overheat.

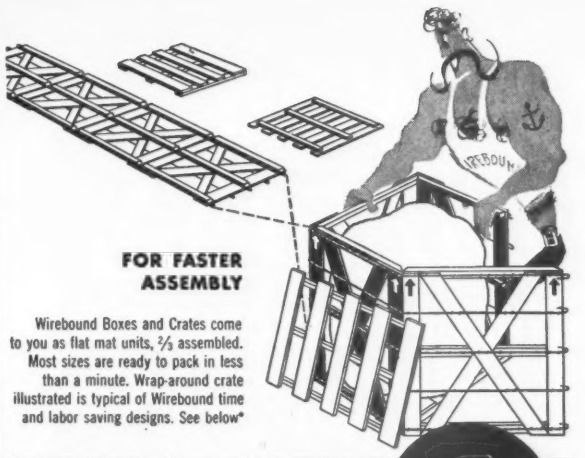
FREEZER LEASED—Grigg Bros. have leased the Ontario plant of Bridgford Co. They will freeze corn at the rate of 120 tons daily.

FIBERBOARD DEAL — Fiberboard Products, Inc., has sold the newly completed building at S.E. 24th Ave. and Holgate Blvd. to Penn Mutual Life Insurance Co. for $642,988, according to county records.

FIBER FLAX MARKET RESEARCH — An experimental project aimed at finding new market outlets for Oregon fiber flax has been launched at Oregon State College, centered around work done by Miss Joan Patterson of the school of home economics in developing hand-woven fabrics. She will now work on adapting hand methods to power machinery for quantity production, as well as experimenting with combining linen and Oregon woolen yarns in new combination materials. In carrying out this project she will use Oregon flax yarns and materials manufactured by the Salem Linen mills, Oregon Flax Textiles, and Flax Recovery, Inc. If a national market can be developed, it could easily absorb the bulk of Oregon's fiber flax production.

AGGREGATE PLANT—Smithwick Concrete Products Co. plans to construct a $200,000 plant to produce light-weight aggregate from expanded shale. New plant will be located adjacent to the concrete block operations of the company in Portland.

INTERNATIONAL HARVESTER WAREHOUSE — International Harvester Co. now has plans out to bid on a new warehouse and distribution center on McLoughlin Blvd., Milwaukee. Main building will be a reinforced concrete structure 280 by 207 feet.



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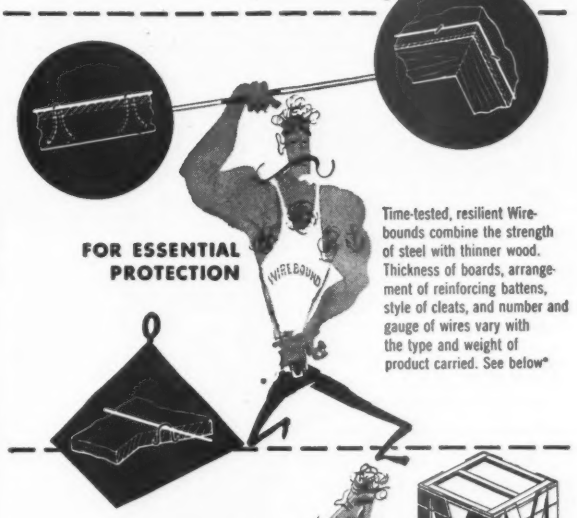

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THE WEST ON ITS WAY

NUT GROWERS EXPAND—Northwest Nut Growers have leased 67,000 sq. ft. of floor space in the General Storage Warehouse on Swan Island. Filberts and walnuts from all the cooperatives in Oregon and Washington belonging to this organization will be packaged and processed for distribution at this location.

ASTORIA EYES GRAIN BIZ—Astoria is establishing grain storing and exporting facilities in a move that gives promise of making it a major grain port. Port of Astoria, Pillsbury Flour Mills, Inc., and North Pacific Grain Growers' Asso. are cooperating in the venture. A contract to provide storage space for 1,500,000 bushels of grain has already been signed. Port of Astoria is providing storage space and guaranteeing deep water for shipping; Grain Growers' Asso. is providing machinery and equipment; Pillsbury is permitting joint use of a leased elevator on pier 1.

SPAR CO. SOLD—Portland Spar Co. has been sold to Fred E. Lockyear Lumber Co., Reedsport. The Reedsport firm is in the business of manufacturing round spars and studs as well as square timbers 140 feet and longer.

CHEMICAL LAB BLAST — Krishell Laboratories, Inc., chemical testing firm, was recently wrecked by three explosions and a fire. Two men working inside the plant, at 1735 S.E. Powell Boulevard, Portland, were severely burned.

BIG IMPROVEMENT ON THE BROOM—An industrial power suction sweeper, the "Modern Witch," is introduced by Playcraft Products Co., Portland. An operator, riding on an attached dolly, can clean 35,000 square feet of floor area per hour.

SELF-SUFFICIENT TOOTHBRUSH—This toothbrush, not much larger than a fountain pen, clamps on a pocket or fits milady's purse. It has its own powder in the hollow handle, is produced by Grant & Roth Co., Portland, and will be marketed by Dentry Sentry Co.

ROLL TYPE ALUMINUM AWNINGS—Northwest Tube & Metal Fabricators, Portland, are producing roll type aluminum awnings for commercial and home installations.

OYSTER PACKER ENLARGES—Hayes Oyster Co., Bay City, is enlarging the processing plant and facilities to raise the payroll from present 25 employees to 150.

SALESMANSHIP has been dead for 10 years!

Growing competition makes it imperative that management take immediate steps to re-train salesmen to again use aggressive selling tactics. To supply this need, Rockett Pictures has produced a hard hitting Series of eight Sound Slide Films titled, "AGGRESSIVE SELLING."

Designed for easy use by the executive, each film delivers complete training on its subject yet remains fully integrated into the Series.

The titles are:

1. "The Sleeping Giant"—American Salesmanship
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3. "The Attitude That Gets Business"
4. "What Do You Sell?"
5. "Are Prospects Really Different?"
6. "Pride in Price"
7. "Human Relations in Selling"
8. "Close Isn't Closed"

When may we arrange to screen the Series for you?

ROCKETT PICTURES, INC.

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THE WEST ON ITS WAY

REA GRANTS—Rural Electrification Administration has granted the following loan: to Coos-Curry Electric cooperative, at Coquille, $165,000 for extension of electrical service to farming areas.

GRAIN ELEVATOR, WAREHOUSE BURN — Morrow County grain elevator and warehouse, largest in the county and stuffed with grain, suffered great damage in a recent fire.

UTAH

• Aerial view of Chicago Bridge & Iron Co.'s new plant at Salt Lake City, showing shops, crane runway, office, garage.

OIL LAND PURCHASES—Joint bid of $23,364 by Carter and Continental Oil Companies for 4,150 acres of land in the eastern Utah oil fields has been accepted. Both firms agree to drill a 7500 foot test within one year. This is Ute tribal land, under jurisdiction of Fort Duchesne Indian reservation. Carter and Stanolind Oil & Gas Co. bid about $500,000 and thereby obtained 16,000 acres of land near a producing well at Roosevelt.

BECHTEL CONTRACT—Contract has been awarded Bechtel Corp. to design and build a multi-million dollar catalytic cracking plant for Salt Lake Refining Co., a subsidiary of Standard Oil of Calif. Completion is scheduled for the end of 1950.

STOP

Pickling-Fume Destruction

AS fumes rise from pickling tanks, they carry tiny acid drops with them. Up, up they go and finally settle on cross beams, window frames, overhead hoists, pipes, electrical fixtures and the like. Then trouble starts! Soon the deposited acid begins to eat through paint-coats right to the bare steel—then rust starts its destructive action.

You can stop this costly cause of rusting by adding Oakite Composition No. 38 to your pickling solution. This new additive forms a sturdy foam blanket that traps the acid fumes in the tank and holds them there. Complete details on Oakite Composition No. 38 gladly forwarded on request. Write address below. No obligation.

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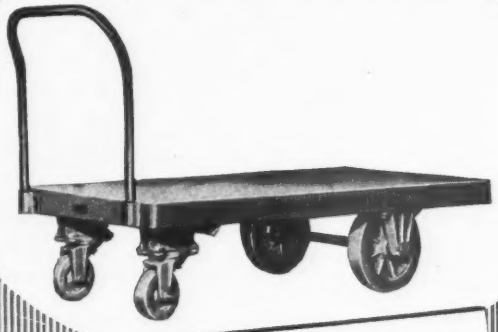

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THE WEST ON ITS WAY

FUEL SUPPLY CO. EXPANDS—Mountain Fuel Supply Co., Salt Lake City, plans a $270,000 expansion, consisting of remodeling the present quarters plus building a three-story and basement addition.

SMELTER CLOSES—Operations stopped for an indefinite period, on October 1, at American Smelting and Refining Co.'s Murray smelter. Shortages of ore and other economic conditions influenced this decision.

NEW PARK MINING RESUMES—New Park Mining Co.'s Park City district mine has resumed operations, following agreement between the management and union involved.

IDEAL CEMENT CLOSES—Ideal Cement Co.'s plant at Devil's Slide, east of Ogden, is temporarily shut down pending increased demand in the area. About 250 employees are affected. The firm does not intend to abandon the plant.

WASHINGTON

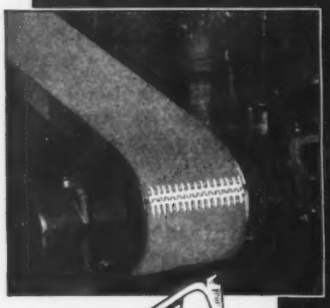
CANNERY CHANGE—Burk Canning Co., Bellingham, capitalized at $50,000, has been organized to replace the former P. J. Burk Canning Co.

UNION OIL EXPLORES—Union Oil Co. is ready to start an exploratory well in the area near Carney Lake, Kitsap County, close to Portland.

WASHINGTON PACKERS LEASED—Interstate Growers' cooperative has a six-year lease on the Washington Packers, Inc. plant on property of the Port of Longview. The plant will be taken over on March 1, 1950.

ALCOA LETS CONTRACT — Aluminum Co. of America has awarded to Austin Co., Seattle, a contract for construction of a two-story office building at Vancouver, Wash. The $250,000 building will house 41 offices and two conference rooms.

ALLIGATOR



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THE WEST ON ITS WAY

PERMANENTE CEMENT RESUMES—Permanente Cement Co.'s Duwamish plant at Seattle has resumed full operations as the firm's Northwest headquarters. Distribution facilities will be improved.

PLYWOOD FIRM—Oregon-Washington Plywood Co. at Tacoma, which was closed a short while ago, will be reopened by a new corporation formed by nine former employees of the firm. Capitalization is listed at $400,000.

PORTCO CORP. MOVES—Portco Corporation, producer of twines, cords, bags, and specialty items, has moved to a new plant at Vancouver, Washington, on property adjoining the Kaiser shipyard east of the city.

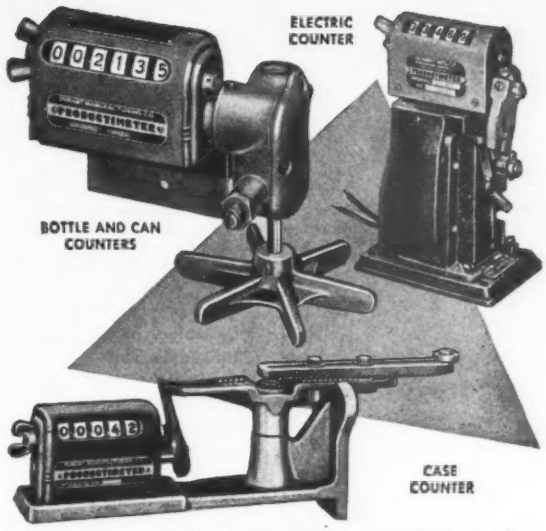
NEW JET AIRCRAFT STABILIZER—Boeing Aircraft Co. has developed a new automatic stabilizer for jet aircraft which has cut down yaw and roll to less than one-tenth of one degree. The instrument is completely separate from the automatic pilot. It consists of a gyroscope, electronic amplifiers, and a small electric motor.

AEC PLANS TO SPEND $84,000,000 AT HANFORD—According to Senator Cain (R., Washington), the Atomic Energy Commission hopes to spend $84,000,000 in new construction at Hanford if Congress approves requested appropriations.

PCF GETS CONTRACT—At a cost of $1,800,000, Pacific Car & Foundry Co. is building 400 railroad refrigerator cars at the Renton plant. Two hundred will be rebuilt for Fruit Growers Express, and a like number for Western Fruit Express. Six months will be required for the project.

NEW PUGET SOUND FERRY—Peninsula Ferries Corp. is a new firm organized to operate a ferry service in Puget Sound. Kitsap County commissioners board has granted the firm a bareboat charter to establish a 20-minute auto ferry service between Seattle's Ballard district of Snoquamish.

KAISER BUYS MACHINES FOR TRENTWOOD — Kaiser is spending more than $1,000,000 to purchase new machines for Permanente Metals Corp.'s Trentwood rolling mill. This new equipment will enable the firm to manufacture a larger and much more diversified line of aluminum products.



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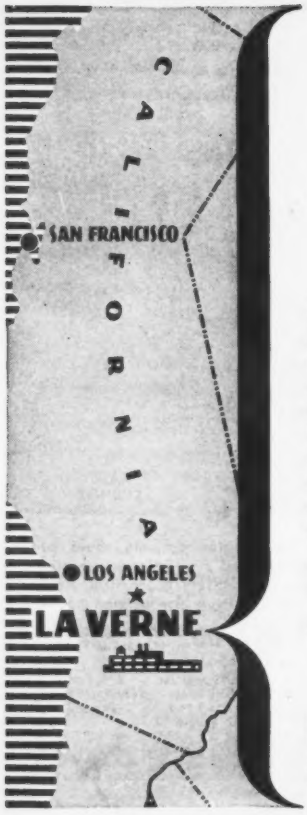

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THE WEST ON ITS WAY

BOEING CONTEMPLATES MOVE—Current controversy centers around the possibility of moving Boeing Airplane Co. bomber assembly lines back to Wichita. See this month's Western Industry Columbia River regional review for a good discussion on this subject.

FIRE LOSS—General Mills farm-service division plant in Tacoma was recently damaged by fire, with building damage set at $50,000 and stock loss of around $100,000.

NORTHWEST AIR FREIGHT SERVICE—Skyways Freight Forwarding Co. will serve 23 major cities of the United States, including Portland and Seattle.

GRAIN CARGO SHIPS LAID UP—At least seven ships, recently on the grain-cargo run to Japan, will be laid up in the Columbia River reserve fleet, soon. This action will put 300 sailors on the beach. At the reserve fleet anchorage near Olympia, Wash., 55 vessels are laid up; at Tongue Point, 163. This recent move to retire ships is a result of the unfavorable charter market and a new policy of the maritime commission to require charter parties to specify immediately whether they desire to keep the vessels four months longer.

ALCOA PLANT CONTRACT—The contract for general building construction of ALCOA's aluminum rod, wire and electrical cable plant at Vancouver, Wash., has been let to L. H. Hoffman Co., Portland. Plant operation is scheduled to start next winter, with about 350 employees to start.

COAL EXPLORATION—U. S. Geological Survey has contracted for a minimum of 3,000 feet of core drilling in the Centralia-Chehalis field. This area, which lies a short distance from Puget Sound, contains in local exposures coal beds ranging from 4 to 36 feet thick, according to the Survey. Preliminary steps include the preparation of a geologic map of an area of about 80 square miles northeast of Centralia, and the drill holes will be located in accordance with recommendations of the author of that map.

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IT'S ALWAYS DEPENDABLE

The Nutting Jack is the ONLY jack operated entirely by gravity and leverage. With no springs to break, there is no danger of your whole jack-skid system suddenly being put out of service. One lift truck and two dead skids cost about the same as *two Nutting Jacks and twelve semi-live skids.* That's one reason why the Nutting Jack and Skid system can be such a money-saver in your plant. Material stored on semi-live skids is made mobile in a hurry. The jack may be coupled to one skid, then uncoupled and coupled to another faster than the time it takes to tell about it.

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Look in your classified phone directory for your Nutting representative, or write for Bulletin 48-JS. It will pay you to get *all* the facts on this superior Nutting Jack-Skid handling system.

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THE WEST ON ITS WAY

WYOMING

SHERIDAN SEEKS GAS PLANT—Sheridan chamber of commerce has contacted a New York engineering firm, now in process of making a national survey of coal deposits suitable for gasoline extraction, and the c of c has pointed out the availability of sub-bituminous beds of coal in Wyoming, Montana, and the Dakotas.

HELIUM GAS???—A wildcat well in the Jackson Hole region of Western Wyoming gushed gas at a depth of 547 feet, and the peculiar odor has led to tests to determine possible presence of helium. U. S. Geological Survey has sent samples to the U. S. Bureau of Mines laboratory at Amarillo, Texas, for more exhaustive analysis.

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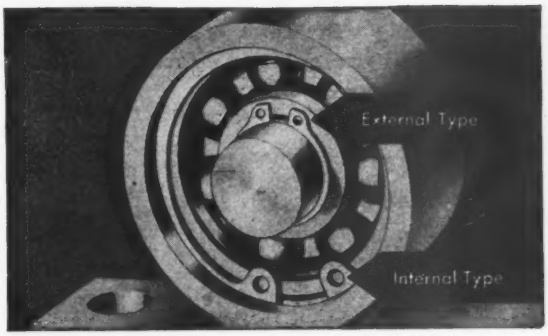

Waldes Truarc Retaining Rings are a new radical approach to the locking, securing and positioning of machine parts such as gears, bushings and bearings on shafts and in housings. They can be applied where formerly only such commonly accepted fasteners as nuts and bolts, cotter pins, screwfastened collars and housing covers were used.

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WESTERNERS AT WORK

Arizona

John W. Newett appointed chief engineer for Phelps Dodge Corporation's New Cornelia branch, Ajo, Arizona.

California

Ralph K. Paine appointed manager of Standard Oil of California's pipe line department, succeeding Clyde A. Swigart, recently elected a vice president of Trans-Arabian Pipe Line Co.

Wilbur A. Howe, Berkeley, named manager of engineering and service for the Pacific Coast district of Westinghouse Electric Corp. Howe succeeds A. W. Copley of Palo Alto, who has retired after 46 years with the firm.

Clifford Marquardt named factory superintendent of Nash Motors division, Nash-Kelvinator Corp., El Segundo. H. H. Moses appointed assistant works manager at the plant.

John N. Mackall, Jr., station manager for Southwest Airways Co., at San Francisco, appointed district traffic manager of Oakland, Napa, Vallejo, and the East Bay communities.

T. R. Morgan named assistant manager of Paraffine Companies, Inc., Western floor covering region at San Francisco.

A. I. Kihn becomes new marine manager for Standard Oil of California.

Angus V. McLeod

Angus V. McLeod appointed general traffic manager for Permanente Metals Corp., Oakland. E. J. Duffy named assistant general superintendant of Kaiser Steel Corporation's Fontana plant.

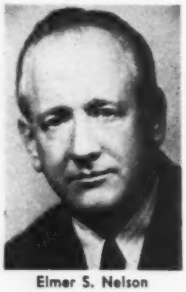
F. A. Heitmeyer becomes northern district drilling superintendent for Standard Oil of Calif., succeeding Charles L. Brewster, retired.

Hugo Druehl appointed manager, Organization Planning and Personnel, for Pacific Public Service Co. and Coast Counties Gas & Electric Co. R. L. Hayden assumes office of vice president and regional manager of Coast Counties, succeeding A. E. Strong, retired. George Bowersox is acting regional manager at Concord; E. A. Clark is now regional personnel manager at Santa Cruz; C. R. Hayden appointed regional sales manager at Concord; Leonard Rausch becomes district manager at Watsonville, replacing Hayden in that post. George M. Henderson appointed regional personnel manager at Pittsburg.

E. B. Palmer named assistant manager at Union Oil Co. of Calif. Los Angeles refinery; H. C. Meiners upped to the same job at the firm's Oleum refinery.

Willard R. Wieschendorff appointed manager of Dearborn Chemical Co.'s Western offices and manufacturing plant, with headquarters at 807-15 Mateo St., Los Angeles, 21.

Burnham Adams, manager of the California division of Lear, Inc., elected vice president of the corporation. He has supervised sales and manufacturing activities of the firm's California division at 11916 W. Pico in Los Angeles since May, 1946.



Elmer S. Nelson

Elmer S. Nelson succeeds Oliver E. Overseth as executive secretary and manager of California Fertilizer Association, Los Angeles. Nelson's former association was with the Dept. of Commerce in an economic advisory capacity.

David S. Pribyl announced as plant manager for the Tracy, Calif., plant of H. J. Heinz. Pribyl succeeds the late V. W. Rothe.

William A. Tussey appointed assistant supervisor of labor relations for the Western Pacific Railroad.

Elton J. Leggett succeeds T. H. Eggers as general manager of Wyandotte Olive Growers Assn.

Elmer A. Dagenais is the new works manager at Kroehler Manufacturing Co's Inglewood plant. W. J. Hubert is the plant's newly-named West Coast sales manager, and Earl Hubert, formerly with the firm's production department, will handle sales in one of Kroehler's Pacific territories.

Norris Johnston becomes president of the consulting firm, Petroleum Technologists, Inc., at Montebello. He was formerly chief physicist in charge of production research for General Petroleum Corp.

W. A. Brown, Jr., president of Stuart Oxygen Co., San Francisco and Los Angeles, appointed vice-president and general manager of the parent company, The Liquid Carbonic Corporation, with headquarters in Chicago.

Olin D. Haley appointed superintendent of communications for the Western region of American Airlines, with headquarters at the Los Angeles Municipal Airport.

John B. Waskey named factory superintendent for Pacific Airmotive Corp., Burbank, Calif., replacing L. M. Reed, transferred to company's Anchorage, Alaska, division.

John H. Sheusner

John H. Sheusner promoted from chief design engineer to chief engineer of Enterprise Engine & Foundry Co., San Francisco, to handle engineering activities of the firm's Oil Burner Division and Food process Machinery Division as well as marine and stationary diesel engine operations.

Tom Kehane, former commercial vice president in charge of Western operations for Worthington Pump and Machinery Corporation, upped to general sales manager, with headquarters in the East. J. P. McArthur succeeds Kehane in San Francisco.

Neil M. Harrison appointed manager of Field Service and Training Dept. for Lockheed Aircraft Corporation, Burbank. Harrison has been associated with Lockheed as engineer for the past ten years. J. Kenneth Hull elected president of Lockheed Aircraft Service, Inc., a Lockheed Aircraft subsidiary.

W. E. Conkright becomes sales promotion and advertising manager for the General Controls Co., Glendale, California.

Dr. Chen To Tai, of Soochow, China and Harvard University, appointed senior research physicist in Stanford Research Institute's department of electrical engineering. He will head the theoretical section of the Institute's Aircraft Radio Systems Laboratory.

J. W. Zimmerman, Jr., upped to position of manager of International Harvester Co.'s heavy duty truck plant at Emeryville.

J. C. Fischer

J. C. Fischer named general manager of the Sherman Paper Products Corporation of California, Los Angeles. He succeeds A. C. Flinn, who has retired.

Milton George Lucke named superintendent of the hose department of Pioneer Rubber Mills. He will be located at the company's Pittsburg factory.

Omer Denny announced as plant manager for Longview Fibre Co.'s new corrugated shipping container manufacturing plant in Oakland, California, which is expected to be ready for occupancy by the end of the year.

Columbia Steel Co. has appointed two new assistants to O. L. Pringle, vice president in charge of sales. The first, R. E. Williams, is succeeded by R. O. Hails as director of production planning. The second, Harold Q. Noack, will handle assignments in connection with Columbia's customer relations program.

Frederick C. Loomis becomes oil purchase and exchange agent for Standard Oil Company of California, to be assisted by Frank L. Frick. Loomis will be in charge of all the company's oil purchase and exchange negotiations and agreements. A. E. Kihn promoted from assistant manager to manager of Standard's marine department. Reginald C. Warner becomes assistant manager.

Dr. Chester L. Arnold named director of research for Stauffer Chemical Company. His headquarters will be at Richmond, California.

L. E. Tollefson, assistant secretary of Douglas Aircraft Co., advanced to position of secretary, succeeding T. C. McMahon, retired.

Gerald F. Twist

Food Machinery and Chemical Corporation announces three management promotions from within the company's organization. **Gerald F. Twist,** formerly manager of FMC's subsidiary, the Stokes and Smith Company of Philadelphia, has been made manager of the Peerless Pump Division with headquarters at Los Angeles.

W. R. Huguenin

A. W. Elwood

Wm. R. Huguenin, former manager of FMC's Central Export Dept. at San Jose, becomes manager of Stokes and Smith. **A. Wayne Elwood,** former FMC European representative, transferred to San Jose as Central Export manager.

T. H. Acres, new district production engineer with Barnsdall Oil Co. at Newhall, was formerly research engineer with Richfield Oil Corp. at Los Angeles.

T. J. Gamble elected secretary of Southern California Edison Co., replacing **O. V. Showers,** retired.

E. N. Fagg, formerly Conciliator with the Department of Industrial Relations, State of California, resigned to accept an appointment with Union Oil Co. in the Industrial Relations department.

C. W. Chamberlain appointed manager of operations of Seaside Oil Company.

James William Mahoney elected vice president and general manager of the central division of Gladding, McBean & Co., San Francisco, succeeding **C. W. Planje,** who has been made vice president and assistant to the president.

Frank E. Feliz announced as executive secretary for the Fact-Finding Committee of the California State Senate to establish a Port Authority for San Francisco Bay. Feliz was formerly assistant to the executive vice president and general manager of the San Francisco Bay Area Council.

Colorado

John Munson named assistant to the superintendent of blast furnaces for Colorado Fuel & Iron at Pueblo, following the temporary assignment of **Lloyd Dunham,** Pueblo blast furnace assistant superintendent, to the company's Buffalo steel works.

Idaho

James Cruse becomes manager of Birds Eye-Snider plant at Nampa, Idaho.

Montana

V. V. McDonnell promoted to district manager of Montana Power Company, with headquarters at Glasgow. McDonnell, who was formerly the company's manager at Conrad, will be replaced there by **Tom McLeod.**

Joseph E. Parker elected president of North Butte Mining Company, succeeding the late Paul A. Gow.

H. F. Root succeeds **W. C. Lubrecht** as general manager of the Anaconda Copper Mining Co.'s lumber department at Bonner. Lubrecht retires after 52 years with the Anaconda company. **Thomas K. Graham** appointed assistant superintendent of Anaconda's electrolytic zinc plant at Great Falls. His predecessor, **J. George Grunenfelder,** resigns to head the metallurgy department at Montana School of Mines, Butte. **Walter G. Hay** named superintendent of the company's Great Falls rod and wire mill, replacing **William S. Adams,** retired.

Carter Oil Company's new Billings refinery will have the following personnel: **C. J. Mowery,** process superintendent; **Robbert E. Boydston,** chief engineer; **James Bateman,** technical department head; **W. G. Hockbarger,** chief chemist; **A. L. Robinson,** personnel manager; **J. S. Bernier,** planning engineer; **Herman G. Gunter,** general superintendent.

Nevada

Harvey Glover named mill superintendent of the Copper Canyon Mining Company, succeeding **Ralph Hayden,** now on leave of absence.

New Mexico

Edward T. Chapman appointed manager of National Biscuit Company's new plant at Albuquerque. Chapman was formerly with the company in Denver as special representative. **T. B. Patton** becomes office manager and assistant to Chapman in the Albuquerque plant.

Oregon

Howard Lydick appointed general sawmill superintendent of Oregon Pulp & Paper Co.'s sawmill division at Salem, Oregon.

L. R. Hussa elected president, and **C. W. Kellogg, secretary,** of Fabri-Valve Co. of America, Portland, Oregon.

Ralph Fulbright named vice president and general sales manager of Timber Structures, Inc.'s Portland office, succeeding Theodore C. Combs, resigned. **G. Edward Jacoby** succeeds Fulbright as Eugene, Oregon, manager. **H. K. Merrill** named controller at head office in Portland.

J. L. S. Sneed, Jr., promoted to executive vice president, Consolidated Freightways, Inc., Portland.

E. T. Christenson becomes manager of Pillsbury Mills, Inc. flour mill at Astoria, succeeding **Frank Halderman,** retired.

Utah

Thomas C. Tressler appointed research director, analyst and statistician for the Industrial Relations Council of Utah, Salt Lake City.

L. A. Kane appointed director, president, and general manager of Utah Railway Co., replacing **G. S. Anderson,** retired.

Reed Smoot appointed sales manager of U. & I. Sugar Co., to serve the states of Washington, Oregon, Montana, and northern Idaho.

Following men were recently elected to office in the Salt Lake City Chamber of Commerce: **Glen L. Stanley,** vice president and general manager of Salt Lake City Lines, president; **Thornton D. Morriss,** manager of the municipal bond department of Merrill, Lynch, Pierce, Fenner and Beane, vice president; **C. Cash Rampton,** assistant vice president of Walker Bank and Trust Co., treasurer; **Gus P. Backman,** executive secretary, renamed to that office for the 20th consecutive term; **Weston E. Hamilton,** assistant secretary, named assistant general manager and industrial commissioner of the chamber.

Washington

M. S. Munson appointed manager of the George E. Ream Co., 235 South Alameda St., Los Angeles, a subsidiary of Harbor Plywood Corp., which was established as a distributing outlet for Harbor's products. He was formerly in charge of trade promotion and miscellaneous sales for Harbor, and is succeeded in that post by **E. W. Daniels,** chairman of the board of Harbor Plywood Corp.

Dr. R. L. Albrook, for the past year a research chemist on the staff of the division of industrial research, appointed director of industrial research, Washington State Institute of Technology.

Gordon Tongue of Seattle, division manager of Permanente Cement Co.'s operations in connection with its leased Pacific Coast Cement Co's plant, elected vice president and general manager of Northwestern Portland Cement Co.

C. W. Ellis appointed Southern California division manager of General Petroleum's marketing department, replacing **J. O. Pfeifer,** who has taken a leave of absence because of ill health.

William Moyer, director of research for Crown Zellerbach Corp., will assume responsibility for the Central Research Department, Camas, Washington, formerly designated as the Central Research and Technical Department. **W. F. Holzer** and **W. M. Hearon** both promoted to position of assistant director of research. Dr. Holzer will be responsible for and direct the work of the by-products, pulp, paper and special problems research section of the scientific laboratory.

All operations of the Simpson Logging Co. in Mason and Grays Harbor counties have been combined under the title of the Shelton Working Circle, under general management of **C. H. Bacon, Jr.,** former assistant to the president. **George L. Drake** and **C. E. Runacres** appointed vice presidents of the Simpson Logging Co. Drake assumes new duties in charge of advisory functions and planning; Runacres will continue his position as comptroller. **Charles E. Devlin** becomes general sales manager of the company, succeeding R. E. Seeley, resigned. **Leo C. Monahan** is the new manager of sales for the Woodfiber division of the company. He succeeds **A. L. Cozier,** who is now a general assistant to Devlin.

Roy Endsley upped from vice president to president of Northwest Gypsum Company. **George H. Jockers** is the new vice president. **William T. Smith** reappointed secretary-treasurer.

James L. Leonard elected president of Metaline Mining and Leasing Company, Spokane, succeeding H. Louis Schermerhorn, retired. **Karl Jasper** elected vice president and **E. K. Barnes,** secretary.

Wyoming

Tip Kratka named district petroleum engineer, Rocky Mountain district, for the Union Pacific Oil Division, stationed at Rock Springs, Wyo.

Thomas P. Brooks, chief engineer for Southern Production Co., Inc., moves from Casper to Parkerton as superintendent of the Rocky Mountain Division of the firm.

Western TRADE WINDS

News about those who distribute and sell industrial equipment and materials

William Dale Wadlington, Chico, California, appointed sales representative for Calaveras Cement Co. in the north Sacramento Valley territory. He will headquarter in Chico.

John P. McArthur appointed manager of West Coast sales for Worthington Pump Co., with headquarters in San Francisco. He will supervise activities of the Los Angeles, San Francisco, Seattle, and Salt Lake district offices.

Wm. C. Boyd joins **Chain Belt Co.**, 366 Brannan St., San Francisco, as a district field engineer, to specialize in industrial sales.

Arizona Hardware Co., Phoenix, named distributor of Kaiser aluminum products in Arizona.

Daniel W. Sutherland named sales representative for General Electric heating devices and fans in the Pacific district. He will cover northern California and Nevada.

C. H. Dawson

C. H. Dawson has joined Manning, Maxwell & Moore, Inc., manufacturers of materials handling equipment, as resident field engineer in the Los Angeles office, 1325 Santa Fe Avenue, to cover the territory of Southern California and Arizona.

Air Parts, Inc., Glendale, Calif., named distributor for O-rings manufactured by the Parker Appliance Co., Cleveland.

Miller Steel Products Co., Inc., 9858 Adella Ave., South Gate, Calif., appointed distributor in that area for Robbins & Myers, Inc., Springfield, Ohio.

Verne W. Bender appointed manager of distributor sales for the Nelson Stud Welding division of Morton Gregory Corp. Bender, who has served as special representative and field engineer for Nelson Stud Welding in the Bay area since 1945, will have his headquarters at 844-45 Folsom St., San Francisco. He will work directly with salesmen in distributor organizations, which include the Big Three Welding Equipment Co. in the southwest, Victor Equipment Co. on the Pacific Coast, General Welding Supply Co., Denver, and Industrial Supply Co., Salt Lake City.

Louis J. Gallagher is now covering the Pacific Coast states as factory representative for Bassick Caster Co., a division of Stewart Warner Corporation, after putting in four months of training at the Bassick factory in Bridgeport, Conn. He will make his headquarters at 420 Market Street, San Francisco.

Swett Stone Corp. change address from 256 Mission St. to 770 Folsom St., San Francisco.

Marine and Industrial Supplies and Service, Inc., 2501 N. W. Front Ave., Portland, of which Fred Miller is president, have become exclusive distributor in Oregon for the Raybestos-Manhattan line of belting, hose, V-belts and mechanical rubber goods. George E. Cromwell was recently appointed sales manager for the Portland firm.

David W. Jones, Jr., named sales agent for La Salle Steel Co., Chicago, to handle states of Colorado, Utah, and Wyoming. Headquarters for Jones in Denver.

Buda Company appoints the following exclusive materials handling distributors for its Shop Mule industrial tractors, motorized platform trucks (Chore Boys), and fork lift trucks: for Northern California, **Bay Cities Equipment, Inc.**, 2792 Cypress at 28th, Oakland 7, California, Phone TWinoaks 3-8313; for Southern California (except San Diego County) **Fornaciari Company**, 821 So. Santa Fe Avenue, Los Angeles 21, California, phone TUcker 9159. Both distributors have complete customer facilities including material handling equipment display room and modern parts and service facilities.

Joseph G. Shea appointed district representative for Thermoid Rubber Company, with headquarters in Butte, Montana. Shea will cover Montana, Northern Wyoming, and portions of Canada, including Calgary and Edmonton.

Gunn, Carle & Co., San Francisco, become northern California distributors for the complete line of electric trucks, tractors and cranes manufactured by Baker Industrial Truck Division, Baker Raulang Co.

Hobart G. Hobbs, formerly manager of Owens-Corning Fiberglas' Los Angeles branch, becomes manager of that company's branch sales office at Portland. **Robert E. Kendall** appointed sales representative for the Eugene area.

Charles J. Dilke named northern California representative of the American Manufacturing Co., Brooklyn, N.Y., makers of Manila rope. Company's San Francisco office and warehouse are at 383 Brannan Street. Dilke was formerly president of C. J. Hendry Co., San Francisco ship chandlers.

Garlan Morse appointed director of Pacific Coast sales for all product divisions of Sylvania Electric Products, Inc., with headquarters at Sylvania office in San Francisco.

Manuel Gorin, chemical consultant, has established research laboratory facilities at his new office at 1144-48 Howard Street, San Francisco.

A. McMillan & Co., 220 S. E. Ankeny Street, Portland, Oregon, appointed service distributors for Pittsburgh Steel Products Co.

William E. Kelly, Jr., becomes sales engineer for Northern California territory of The Rapids-Standard Company, Inc. Kelly was formerly associated with the E. C. Buehrer Associates, Inc.

Theodore J. Mitchell named industrial sales manager for Finishes Division of duPont Company in the San Francisco region. Mitchell was manager of special industrial sales for duPont's Chicago territory before his present job.

John A. Robinson becomes regional sales manager for Brown Instruments division of Minneapolis-Honeywell Regulator Company. His headquarters will be in Chicago, but his territory will include the Northwest, Rocky Mountain, and Pacific Coast areas.

Douglas Wilkings, former vice president and general manager of New Plastic Corp., appointed divisional sales manager for the Granberg Corp. Wilkings' territory includes Southern California, Arizona, and a new factory branch office at 2700 S. Santa Fe Ave. Granberg produces Granco pumps, meters, air eliminators, and strainers for the petroleum and related industries.

Liberty Equipment and Supply Company named West Coast representatives for Vincent Steel Process Company, makers of Vincent Huntington grinding wheel dressers, cutters and parts. Their offices are located at 2022 East Seventh Street, Los Angeles.

S. L. Gidley

S. L. Gidley appointed paint sales supervisor for the Central District of The Paraffine Companies, Inc. Gidley, and the sales force under his direction, with headquarters in San Francisco, will service all independent Pabco paint dealers in Northern California, Utah, Nevada, Wyoming, and Colorado.

J. E. Redmond Supply Company, Phoenix, appointed district sales representative for C. J. Tagliabue Corporation (N.J.), wholly-owned subsidiary of Weston Electric Instrument Corporation. The firm will handle the complete line of Tagliabue instruments: automatic controllers, hydrometers, hygrometers, moisture meters, oil testing instruments, pyrometers, recorders, recorder controllers, resistance thermometers, thermometers, vacuum gages and valves.

David Hopkins promoted to Western sales manager of Emerson Radio & Television Corp. He was formerly the company's factory representative for Southern California.

Walter J. Pitblado named manager of General Electric's North Pacific sales district lamp department, with headquarters in Portland.

John M. Devers appointed sales manager for Food Machinery and Chemical Corp., San Jose, packing equipment division, upped from assistant sales manager of the FMC division. **Irvin J. Blondon** appointed assistant sales manager of the FMC division.

United Chemical Co. is a new firm formed to act as agents in most California cities for Dow Chemical Co.'s line of agriculture chemicals and allied products. Firm's main office will be in San Francisco, with Southern California sales and office warehouse in Pomona and branches at Sacramento, Fresno, Bakersfield and San Jose. Agricultural Chemical Service Co., an affiliate of the new company, will maintain manufacturing plants for fertilizers and other agricultural chemicals at Fresno and Santa Maria, with sales offices at San Francisco and Fresno.

What is believed to be the only oscillograph service in the Rocky Mountain region is now offered by General Electric's Denver Service Shop. This service is available to anyone in the area who has problems concerning transient characteristics of motors and generators, and to those who wish accurate recordings of strain, pressures, and other electrical phenomena affecting their apparatus.

Richard Parker assumes position of vice-president in charge of sales for Zurbach Steel Company of California, Inc., at 2830 E. Washington Blvd., Los Angeles. A new addition to the company's Los Angeles sales force is Ed Paulsen, formerly of Joseph T. Ryerson & Son, Inc.

Carl J. Hahn becomes division manager of Texcel Division of Industrial Tape Corporation, located in the Hearst Building, San Francisco. Hahn, who will have the responsibility for all Texcel activities on the Pacific Coast, was formerly manager of Douglas Paper Company in San Francisco.

Miller Steel Products Company, Inc., 9858 Adella Ave., South Gate, California, appointed exclusive distributors for Robbins & Myers hoists and cranes in Southern California. Complete sales and service facilities will be maintained and factory approved repairs will be available on the premises. Stanley G. Navis has been appointed manager of the new department for Miller Steel.

J. M. Cosgrove appointed Northwest district sales manager for Kaiser Steel Corporation, Oakland, with headquarters in the Hoge Building, Seattle.

John L. Harvey Company, Spokane, named representative for the Roof Ventilator Division of The Swartwout Company, Cleveland. "Jack" Harvey's new territory for Swartwout is the area west of the Cascade Mountains, and includes northern Idaho.

Ira G. Perin Co. become exclusive California representatives for the Revolvator Company, manufacturers of elevators, hand trucks and power lift trucks. Revolvator stocks will be carried in Perin's San Francisco and Los Angeles warehouses.

Richard B. Paddock named western district manager of the new West Coast office of Farrington Manufacturing Company, Boston, Mass. The new office is located in the Western Merchandise Mart, 1355 Market Street, San Francisco, and will handle selling and distribution for consumer products, display packaging and Charga-Plate.

William L. Nelson made manager of industrial chemical sales for Dow Chemical Co.'s Great Western Division at San Francisco. **J. H. Scism** becomes assistant manager.

California Cold Rolled Steel Corporation, Los Angeles, appointed Western distributors and agents for The Thomas Steel Company, Warren, Ohio. This will supplement representation of Thomas Steel in the West by John Gregory, who will continue to represent the company from his San Mateo headquarters.

Lindberg Engineering Company has consolidated its Los Angeles Industrial Heat Treating Furnace sales office and the Lindberg-Fisher Melting Furnace sales office to produce a new sales office arrangement for the state of California. Combined sales activities will be headed by Ken Hoke, who will be assisted by George Prest. New office will be at 2460 Enterprise Street, Los Angeles.

T. A. Schilling recently became sales manager for the central division of Morris P. Kirk & Son, Inc., which includes all of California from Fresno north. The company is a subsidiary of National Lead. Mr. Schilling's office is at 4050 Horton Street, Emeryville.

Ziegler Steel Service Company of Los Angeles are opening an Oakland division at 2307 Union Street, Oakland, Calif. The new division will be managed by Phillip S. Champion; the San Francisco and San Jose district will be covered by Walter Lakin. The company's Oakland division has a complete stock of flat rolled steel products which includes hot rolled, cold rolled and galvanized sheets, tin plate and floor plate.

Douglas Jones announced as manager of the Salt Lake City district office of Chain Belt Company of Milwaukee. He will operate his business under the name of the Douglas Jones Company, at 1551 Redondo Ave., Salt Lake City.

L. C. Richardson appointed sales representative for The Ridge Tool Company, Elyria, Ohio. Richardson will cover the company's inter-mountain territory, which includes Colorado and Wyoming.

L. C. Richardson

Fisher Brothers Co., (Industrial Sales Division), 8 Seventh St., Astoria, Ore., and **May-Air,** 1301 Tenth St., Modesto, Calif., named Pacific Coast dealers for Allis-Chalmers general machinery division. Fisher Brothers will handle Allis-Chalmers motors, controls, and centrifugal pumps in Clatsop and Columbia counties, while May-Air is dealer for the company's motors, controls, Texrope drive equipment, and centrifugal pumps in San Joaquin, Stanislaus, Merced, Tuolumne, and Calaveras counties.

James A. Bardsley appointed sales manager of California division of The Trailmobile Company. Bardsley comes to California from the company's Indianapolis and Cincinnati plants.

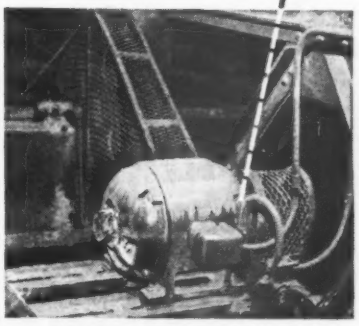
Calaveras Cement Company are introducing a new plastic cement in the Northern California territory. They state that the new product has undergone extensive field and laboratory tests, and will be placed on the market shortly.

J. T. Belleville, north-central states sales manager for National Chemical & Manufacturing Co.'s Luminall division, appointed head of development sales for San Francisco area.

Silicone News

DC SILICONES

Here's where DC Silicone Insulation Saved $700 per hour



It cost Standard Gypsum Company of California about $700 per hour every time heavy overloads caused the 25 h.p. motor driving screw conveyors in the mixing house to fail. And such expensive motor failures were occurring every 30 to 60 days until the silicone insulated 10 h.p. motor shown above was installed in December, 1948.

This silicone insulated motor is only about ½ the size and weight of the motor formerly used, yet, it is still performing the same work after 8 months without failure. That's what is meant when we say Dow Corning Silicone Electrical Insulation gives you more power per pound, greater reliability, reduced maintenance costs and increased production.

Every day, more and more engineers are specifying DC Silicone Electrical Insulation in motors exposed to excessive heat, moisture, or heavy overloads. If you would like to learn why these engineers are relying on Silicone Insulation, phone our nearest branch office or write for booklet AL-10.

DOW CORNING CORPORATION
MIDLAND, MICHIGAN

Atlanta • Chicago • Cleveland • Dallas
Los Angeles • New York
In Canada: Fiberglas Canada, Ltd., Toronto
In England: Albright and Wilson, Ltd., London

Photo courtesy Standard Gypsum Company of California

FIRST in Silicones
Dow Corning

OXYGEN
ACETYLENE
HYDROGEN
NITROGEN
WELDING
EQUIPMENT
& SUPPLIES

Stuart Oxygen Co.
SAN FRANCISCO · OAKLAND · LOS ANGELES

This is a fast-moving efficient organization of competent people, always ready and able to serve you well.

Associations Elect

Pacific Coast Paper Box Manufacturers Assn.: Morton Schmidt, Schmidt Lithograph Co., San Francisco, president; George C. Mackie, Origsby Brothers Paper Box Manufacturers, Portland, Ore., vice president; Charles Minsky, Acme Paper Box Co., Los Angeles, treasurer; J. N. Mills reappointed executive secretary.

Western States Chamber of Commerce Metals Conference: Representatives of 12 companies in three states recently formed this organization, with Claude Brooks, Globe, Arizona, as president; Bill Upton, Bayard, New Mex., vice president; Jack Brage, Miami, Arizona, secretary treasurer. Representatives were present from Arizona, New Mexico, and Texas.

California Metal Trades Assn.: Cloyd E. Gray, president of W. R. Ames Co., San Francisco, elected president.

Pineapple Growers Association of Hawaii: Elvon Musick, Los Angeles, reelected president; R. G. Bell and Dr. E. C. Auchter, Honolulu, and G. R. Ward and E. B. Woodworth, San Francisco, elected vice presidents. Other officers reelected.

Colorado and New Mexico Coal Operators Assn.: J. S. Besser, sales manager of Colorado Fuel & Iron Corp., president; G. R. Harris, Hayden Coal Co. (Denver), vice president; J. R. Kastler, St. Louis, Rocky Mountain & Pacific Co. (Raton, N.M.), second vice president; O. F. Bridwell, Denver, reelected secretary-treasurer.

Perlite Institute: J. Don Alexander, president of AleXitE Engineering Division of Alexander Film Co., Colorado Springs, vice president.

American Petroleum Institute, Rocky Mountain district: Zack M. Brinkerhoff, Jr., Casper, Wyo., chairman; C. L. Larson, Jr., division manager of Stanolind Oil & Gas Co., Casper, vice chairman for Wyoming; Charles A. Pickett, California Co., Denver, vice chairman for Colorado.

Willamette Valley Logging Conference: Robert P. Conklin, Weyerhaeuser Timber Co. North Bend, Oregon, president; Weldon Kline, Harbor Plywood Corp., Riddle, Ore., vice president; Faye Abrams, Booth-Kelly Lumber Co., Springfield, Oregon, treasurer; Herbert J. Cox, Eugene, Oregon, secretary.

International Shipping Federation: This organization headquarters in London, concerns itself principally with seafaring labor problems. Maitland S. Pennington, vice president of Pacific Transport Lines, Inc., and of Pacific American Steamship Corp., elected vice president.

Coal Producers Association of Washington: Earl R. McMillan, assistant manager of coal operations for Northwest Improvement Co., president; William Strain, owner of Strain Coal Co., first vice president; Harry Merback, vice president in charge of sales for Bellingham Coal Mines, second vice president; James E. Ash, secretary-treasurer.

Conservation Committee of California Oil Producers: Lot Bowen, Western Gulf Oil Co., chairman; T. W. Bell, Texas Co., first vice chairman; Ross McCollum, National Oil Co., second vice president; Henry F. Power, General Petroleum Corp., secretary.

Utah Coal Operators Association: S. J. Craighead, vice president and general manager of United States Fuel Co., president; L. R. Weber, president of Liberty Fuel Co., vice president; B. P. Manley, executive secretary.

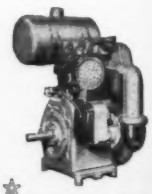
AN ALL TIME RECORD
FOR AN ALL STAR TEAM!

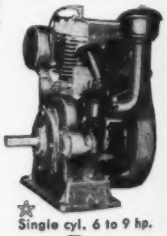
40.2% of All Carburetor Type Engines Built in 1947, 2 to 30 hp. Were WISCONSIN Heavy-Duty Air-Cooled ENGINES!

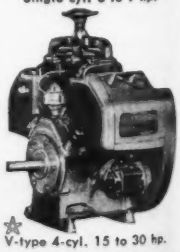
And here's the ALL STAR lineup . . . released in an official bulletin of the Bureau of Census, U. S. Dept., of Commerce, April 22, 1949.

In 1947, Wisconsin Motors built 51.7% of the engines in the 2 to 5 hp. range . . . in the 5 to 9 hp. range, 36.4% . . . 71.6% in the 15 to 22 hp. range . . . and in the 25 to 40 hp. range, 14.7%. Averaged together, 40.2% of the engines in the 2 to 30 hp. range were Wisconsins — excluding automotive, aircraft and outboard marine engines, and engines for use as original equipment by various manufacturers.

These figures sum up the confidence of equipment builders and users who are the final judges in choosing superior engines *where it counts most* . . . on the job delivering the goods.


Single cyl. 2 to 6 hp.


Single cyl. 6 to 9 hp.


V-type 4-cyl. 15 to 30 hp.

WISCONSIN MOTOR CORPORATION
World's Largest Builders of Heavy-Duty Air-Cooled Engines
MILWAUKEE 14, WISCONSIN

The Controllers Institute of America: Roger W. Leason, vice president and treasurer of Emsco Derrick and Equipment Co., Los Angeles, president of the Los Angeles Control; Louis C. Hageman, secretary-treasurer of Luer Packing Co. Los Angeles, first vice president; W. D. Morgan, vice president and treasurer of the Garrett Corp., Los Angeles, second vice president; Murray Gelber, secretary of the Garrett Corp., secretary-treasurer.

Petroleum Accountants Society of Los Angeles: Elmer C. Rogers, head of the marketing accounting division of Union Oil Co. of Calif., president; Harold D. Osborn, General Petroleum Corp., first vice president; Fred S. R. Sedding, Doheny-Battson Interests, second vice president; J. R. Brown, Standard Oil Co. of Calif., secretary-treasurer.

Douglas Fir Plywood Association: Frost Snyder, president of Vancouver (Wash.) Plywood Co., president; F. L. Johnson, general manager of Anacortes (Wash.) Veneer, Inc., vice president; Leonard Nystrom, president of Associated Plywood Mills, Inc., Eugene, Ore., reelected secretary; J. H. Smith, general manager of Puget Sound Plywood, Inc., Tacoma, Wash., reelected treasurer.

Idaho Mining Association: A. H. Shoemaker, vice president and manager of Triumph Mining Co., Triumph, Idaho, president; H. L. Day, of Day Mines, Inc., Wallace, vice president; Harry W. Marsh, Boise, reelected secretary.

Gray Iron Founders Society: Officers of new Salt Lake group: chairman, Jack F. May, general manager of Lundin & May Foundry Co., Inc., Salt Lake City; other members: Sid McKenzie, Western Foundry & Repair Works, Salt Lake City; J. N. Carter, works manager, American Foundry & Machine Company, Salt Lake City; James Silver, president, Ogden Iron Works, Ogden; E. H. Backman, partner, Backman Foundry, Provo.

California Motor Transport Association, Inc.'s new officers elected at annual meeting at Los Angeles: president, Henry W. Bigge, Oakland; W. J. Fortier, re-elected treasurer; A. D. Paxton of San Marino, secretary; vice presidents: Neil Curry for Southern California and J. P. Spaenhower for Northern California.

Purchasing Agents' Association of Northern California, Inc.: Arthur J. Melka, Hydraulic Dredging Co., Ltd., Oakland, president; H. W. Christensen, Columbia Steel Co., first vice president, H. R. Morrison, Union Oil Co. of California, second vice president; secretary, R. J. Henderson, The American Rubber Manufacturing Co.; treasurer, B. E. Gobel, Consolidated Western Steel Corporation.

California Oil Producers, Los Angeles, new Administrative Committee: Bruce H. Robinson, General Petroleum Corp., chairman; Chester F. Dolley, Atlantic Oil Company; H. G. Henderson, Severns Drilling Company, Ltd.; William L. Hobro, Shell Oil Company, Inc.; Lloyd Williamson, Lakeport Petroleum Company. The committee's new Engineering Board consists of C. W. Stephens, The Ohio Oil Company, chairman; E. A. Galvin, Western Gulf Oil Company; C. F. Gates, General Petroleum Corporation; Wayne Glenn, Continental Oil Company; O. A. Graybeal, Barnsdall Oil Company; Joseph Jensen, Tide Water Associated Oil Company; J. M. McNeill, Union Oil Company of California; M. T. Miller, Standard Oil Company of California; L. R. Rogers, The Superior Oil Company and E. R. Smith, Seaboard Oil Company of Delaware.

THE RIGHT **BALL**

Let Strom Help You

Not only in precision ball bearings, but in countless other places, Strom has found that the right ball will do the job better. Maybe your problem can be solved with the use of the proper ball. Why not take it up with Strom.

Strom has been making precision metal balls for over 25 years for all industry and can be a big help to you in selecting the right ball for any of your requirements. In size and spherical accuracy, perfection of surface, uniformity and dependable physical quality, there's not a better ball made.

Pacific Coast Representative: **Harold R. Swanton, Inc.**
1706 So. Grand Ave., Los Angeles 15, Calif.

Strom STEEL BALL CO.
1850 So. 54th Ave., Cicero 50, Illinois
Largest Independent and Exclusive Metal Ball Manufacturer

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STANDS FOR SATISFACTION . . .

THE CUSTOMER SATISFACTION THAT HAS BUILT TRI-STATE SUPPLY CORPORATION TO ONE OF THE WEST'S LEADING SOURCES FOR QUALITY ELECTRICAL MATERIALS! FOR OVER 15 YEARS, THROUGH PEACE AND WAR, TRI-STATE HAS SPECIALIZED IN CUSTOMER SATISFACTION WITH QUALITY AND DEPENDABILITY . . .

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TAPES • WIRE • SOLDER • LAMINATIONS
INSULATING VARNISH • PAPER • TWINE
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CLOTH • CANVAS • INSULATION • CONNECTOR
CORDS • WEBBING • EYELETS • FIBRE
WASHERS • SLEEVING • TUBING • TAGS
MARKERS • YARN • LUGS • MICA • RODS
SHEETS • TUBES • PRESSBOARDS • TOOLS
SLOT WEDGES • CARBON BRUSHES
BALL BEARINGS • SLEEVE BEARINGS
MAGNET WIRE • ASBESTOS WIRE
LEAD WIRE • EQUIPMENT • SILICONES
SCOTCH TAPES • ROD AND TUBE
FIBRE SHEET • COMMUTATORS
CAPACITATORS • STAYBINDING

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Important Discovery in the Field of Acoustics

A new kind of electro-mechanical transducer capable of radiating 100 watts per square centimeter continuous acoustic power has been developed by Bell Laboratories. It seems that this discovery would have far-reaching effects in the field of sound and ultra-sound processing.

The material, a fused barium-titanate ceramic, can be made in any size or shape. It exhibits strong piezoelectric activity.

Effects observed are even greater than those shown in Rochelle salt, which at present probably constitutes the greatest usage. Barium titanate, unlike Rochelle salt, shows little variation with temperature change. It should not be affected by moisture or humidity.

Electromechanical transducers take their most popular form in the shape of microphones, speakers, and sonic detection devices. The electromagnetic type, such as the common telephone receiver, is not likely to be replaced by any piezoelectric device; but crystal microphones, speakers, headsets, and phonograph pickups, which have become very widely used in home and industry, are fair game for this new material.

Due to the isotropic form of a ceramic, barium titanate might be moulded, for example, into a parabolic radiator which could focus energy efficiently in a given direction. To accomplish this job with Rochelle salt or quartz, a mosaic of small area crystals would be required.

Although Bell Laboratories do not speculate on the possible applications of this ceramic, it is undoubtedly a valuable contribution to the field of acoustics. It may become important in the process of changing properties of liquids, or in the pasteurization of liquids as has been accomplished by magnetostriction oscillators.

Battery Men To Be Recharged

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Classes will be held November 14 to 18 at the Trenton plant. Seventeen different lectures by field engineers and consultants will be presented.

A prepared bulletin describes contents of the course, gives hotel names and rates, and lists several restaurants. This bulletin may be obtained by writing to Mr. J. A. Gilruth, School Director, Gould Storage Battery Corp., Trenton, New Jersey.

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